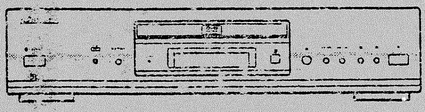
SERN 9721

Pioneer

Service Manual



ORDER NO.
RRV2453

DVD PLAYER

DV-646A

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Region No.	Remarks
	DV-646A			
WYXJ	○	AC220-240V	2	

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8. PANEL FACILITIES AND SPECIFICATIONS ·· 101

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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING !

THE AEL (ACCESSIBLE EMISSION LEVEL) OF THE LASER POWER OUTPUT IS LESS THAN CLASS 1 BUT THE LASER COMPONENT IS CAPABLE OF EMITTING RADIATION EXCEEDING THE LIMIT FOR CLASS 1.

A SPECIALLY INSTRUCTED PERSON SHOULD DO SERVICING OPERATION OF THE APPARATUS.

LASER DIODE CHARACTERISTICS

FOR DVD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 655 nm
FOR CD : MAXIMUM OUTPUT POWER : 5 mW
WAVELENGTH : 785 nm

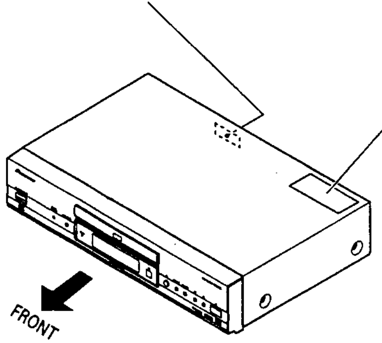
LABEL CHECK

CLASS 1
LASER PRODUCT

(Printed on the Rear Panel)

CAUTION	: VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN AVOID EXPOSURE TO BEAM
VORSICHT	: SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG. WENNABDECKUNG GEÖFFNET NICHT DEM STRAHL AUSSETZEN!
ADVARSEL	: SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING	: SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD BETRAKTA EJ STRÅLEN.
VARO!	: AVATTAESSA ALTISTUT NÄKYVÄ JA NÄKYMÄTTÖMÄLLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEN.
CUIDADO	: RADIACIÓN LÁSER VISIBLE E INVISIBLE AL ESTAR ABIERTO. EVITAR EXPOSICIÓN AL RAYO.

VRW1872



Additional Laser Caution

1. Loading-status detection switch (S101 on the LOAB assy) are detected by the microprocessor (IC601 in the DVDM assy).
   - To permit the laser diode to oscillate, it is required to set the loading-status detection switch for the clamp position (the center terminal of S101 is shorted to +3V).

   When the voltage of IC101-pin 20 is +3V and IC601 (microprocessor) - pin 83 is +3V, 650nm laser diode for DVD oscillates in the DVDM Assy.
   When the voltage of IC101-pin 20 is +3V and IC601 (microprocessor) - pin 83 is 0V (GND), 780nm laser diode for CD oscillates in the DVDM Assy.
   In the test mode * , the laser diode oscillates when microprocessor detects a PLAY signal, or when the PLAY key is pressed (S252 ON in the KEYB assy), with the above requirements satisfied.
2. When the cover is open, close viewing through the objective lens with the naked eye will cause exposure to the laser beam.

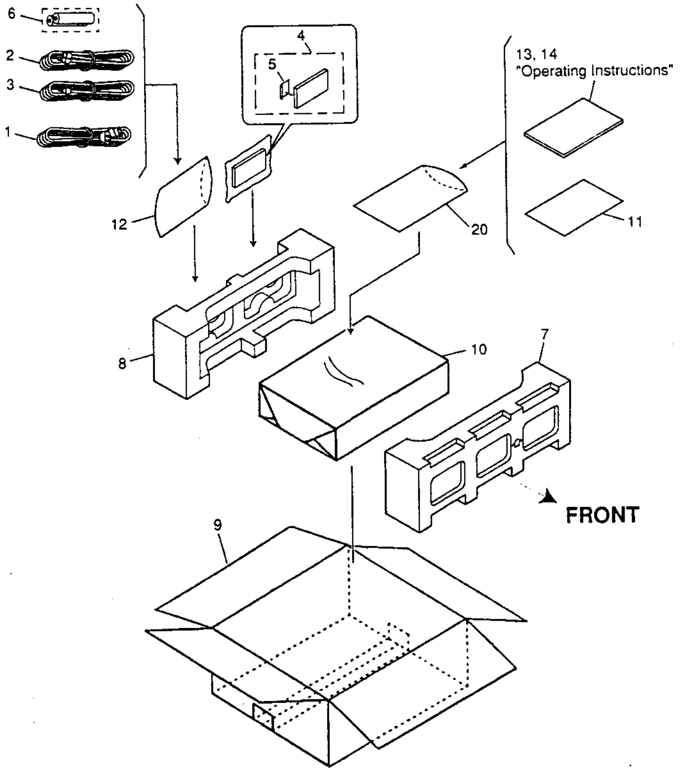
* : See page 57.

---

2. EXPLODED VIEWS AND PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screws adjacent to ▼ mark on the product are used for disassembly.*

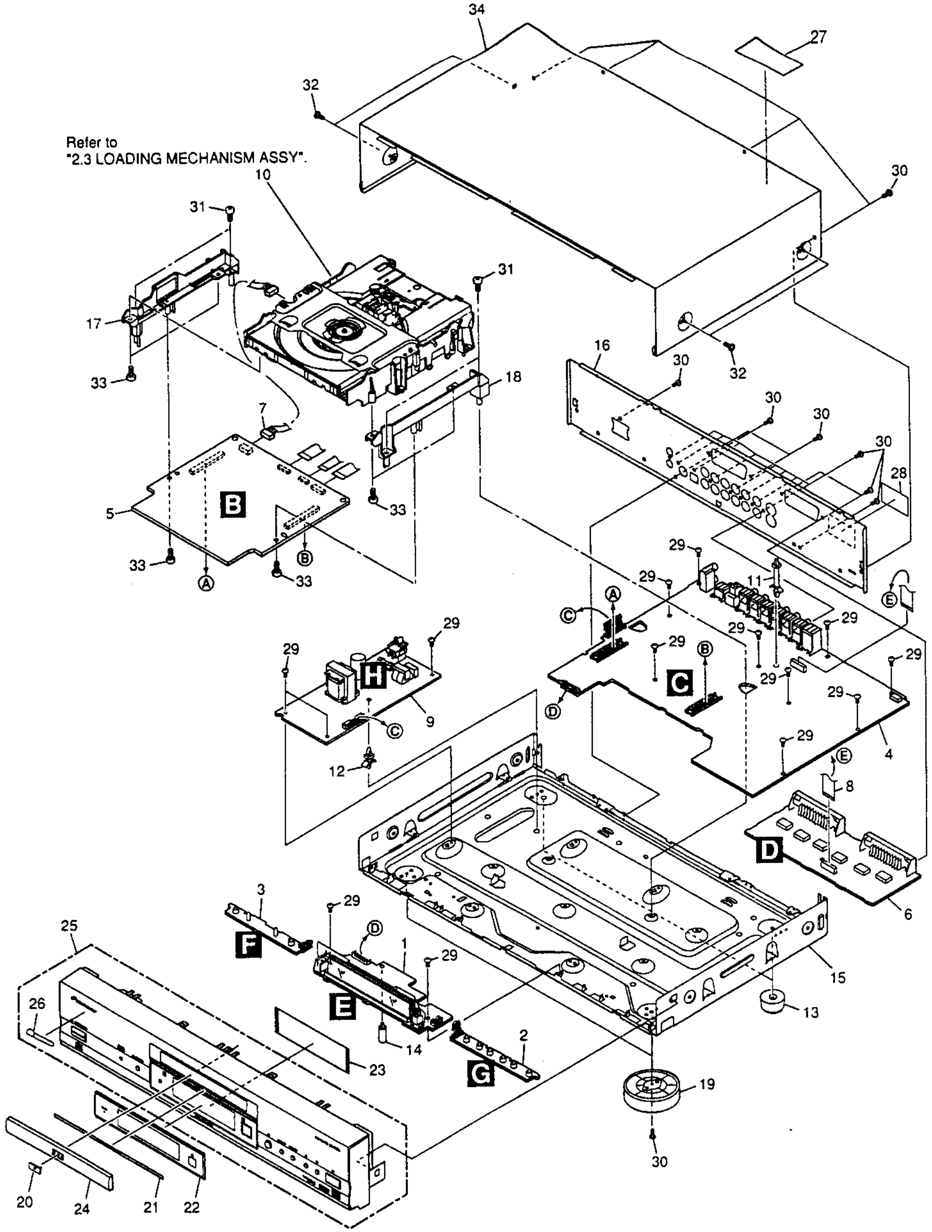
2.1 PACKING



● PACKING PARTS LIST

Mark	No.	Description	Part No.
⚠	1	Power Cable	ADG1154
	2	Audio Cable (L = 1.5m)	VDE1052
	3	Video Cable (L = 1.5m)	VDE1053
	4	Remote Control Unit	VXX2627
	5	Battery Cover	VNK4423
NSP	6	Dry Cell Battery (R6P, AA)	VEM-013
	7	Pad F	VHA1269
	8	Pad R	VHA1270
	9	Packing Case	VHG2062
	10	Mirror Mat Sheet	Z23-007
NSP	11	Warranty Card	ARY7022
	12	Polyethylene Bag	VHL1051
	13	Operating Instructions (English/French/German/Italian)	VRE1088
	14	Operating Instructions (Spanish/Portuguese/Dutch/Swedish)	VRF1057
	15	•••••	
	16	•••••	
	17	•••••	
	18	•••••	
	19	•••••	
NSP	20	Polyethylene Bag	AHG7032

2.2 EXTERIOR SECTION

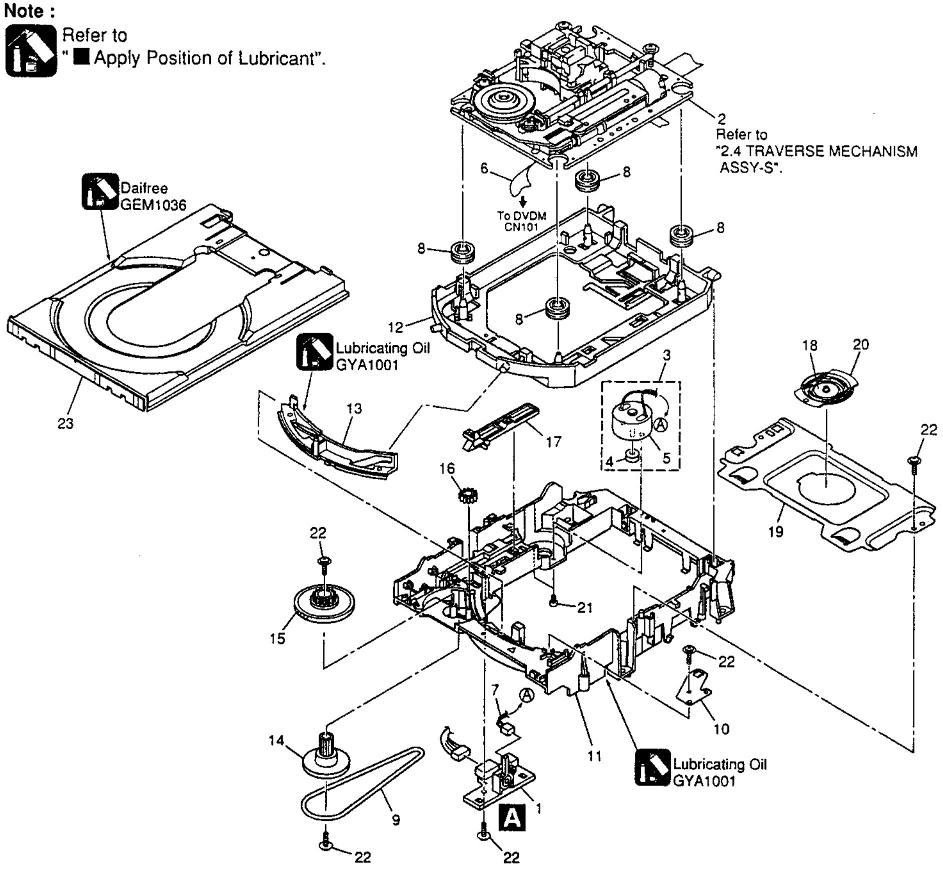

34
27
32
Refer to
"2.3 LOADING MECHANISM ASSY".
10
30
31
31
17
33
32
30
16
18
30
30
7
30
28
33
B
5
33
B
33
A
29
29
11
A
C
E
29
29
29
B
29
29
29
H
C
D
29
9
29
C
29
4
12
E
8
D
6
3
29
D
F
1
29
25
15
E
26
13
14
23
2
G
19
30
20
24
21
22

● EXTERIOR PARTS LIST

Mark	No.	Description	Part No.
	1	FLIR Assy	VWG2297
NSP	2	KEYB Assy	VWG2306
NSP	3	PWSB Assy	VWG2307
	4	AVJB Assy	VWV1866
	5	DVDM Assy	VWS1470
	6	SCRB Assy	VWV1850
	7	Connector Assy	PG05KK-E15
	8	FFC	VDA1870
⚠	9	POWER SUPPLY Unit	VWR1340
NSP	10	Loading Mechanism Assy	VWT1188
	11	PCB Support	VEC1266
	12	PCB Support	VEC2184
	13	Foot	VEC2185
	14	PCB Holder	VEC2215
NSP	15	Chassis	VNA2160
	16	Rear Panel	VNA2309
	17	Adapter27 L	VNL1926
	18	Adapter27 R	VNL1927
	19	Insulator	VXA2424
	20	DVD-A/V Plate	VAM1118
	21	Sub Plate	VEC2205
	22	FL Lens	VEC2211
	23	FL Filter	VEC2213
	24	Tray Panel	VNK4819
	25	Front Panel Assy	VXA2447
	26	Pioneer Name Plate	VAM1109
	27	Label	VRW1872
NSP	28	ID Label	VRW1877
	29	Screw	BBZ30P060FMC
	30	Screw	BBZ30P080FZK
	31	Screw	BBZ30P180FMC
	32	Screw	BCZ40P060FZK
	33	Screw	PPZ30P080FMC
	34	Bonnet Case S	VXX2750

2.3 LOADING MECHANISM ASSY

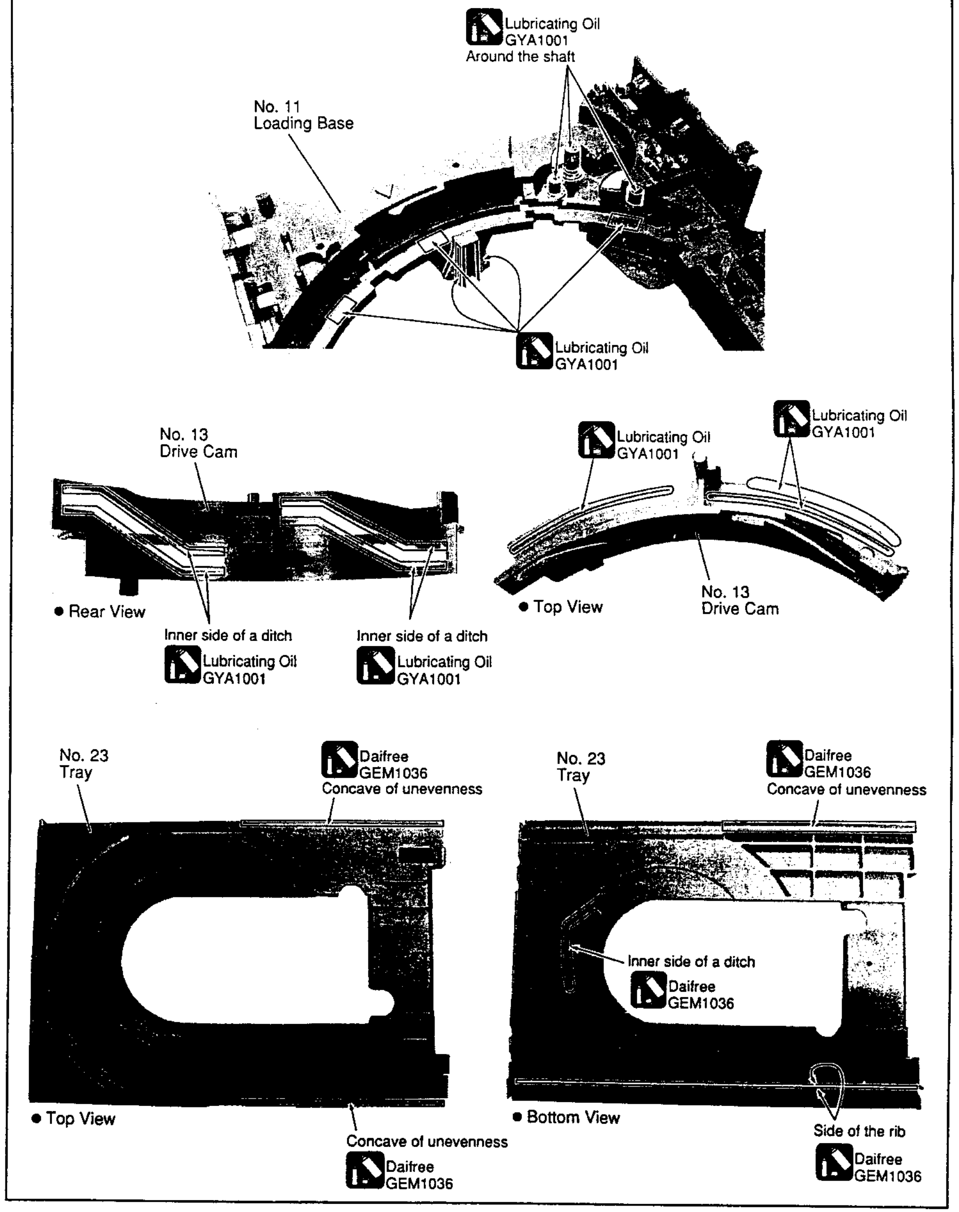
Note :
Refer to
" ■ Apply Position of Lubricant".


Daifree
GEM1036
23
2
Refer to
"2.4 TRAVERSE MECHANISM ASSY-S".
6
To DVDM CN101
8
8
8
8
12
Lubricating Oil
GYA1001
13
3
17
Ⓐ
4
5
16
18
20
22
19
22
15
21
22
10
7
Ⓐ
14
11
Lubricating Oil
GYA1001
9
A
1
22
22

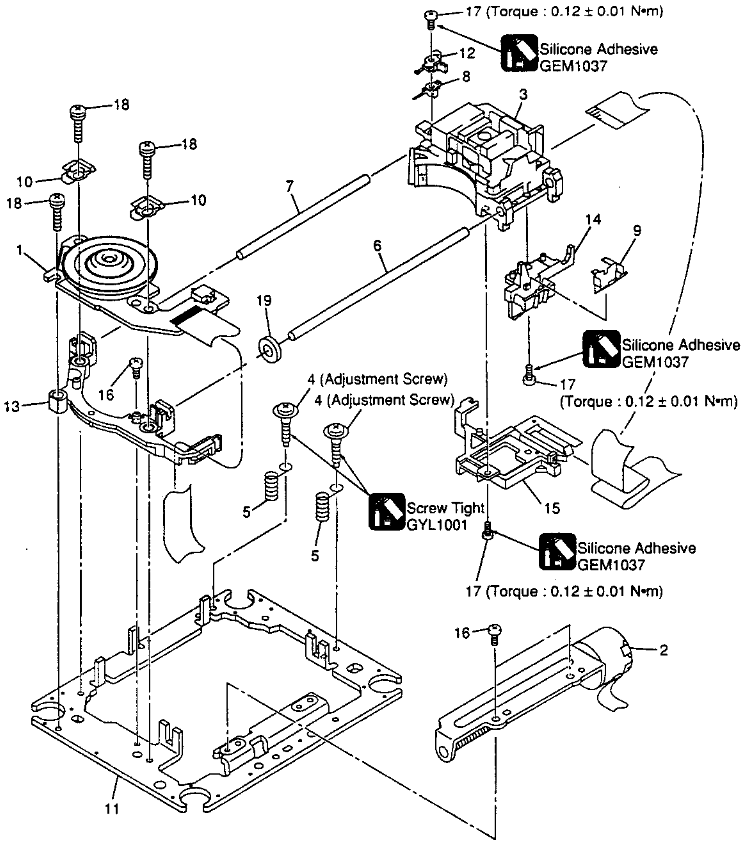
• LOADING MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
NSP	1	LOAB Assy	VWG2279
	2	Traverse Mechanism Assy-S	VXX2782
	3	Loading Motor Assy	VXX2505
	4	Motor Pulley	PNW1634
	5	Carriage DC Motor / 0.3W	PXM1027
	6	Flexible Cable (26P)	VDA1864
	7	Connector Assy 2P	VKP2253
	8	Float Rubber	VEB1327
	9	Belt	VEB1330
	10	Stabilizer	VNE2253
	11	Loading Base	VNL1917
	12	Float Base DVD	VNL1918
	13	Drive Cam	VNL1919
	14	Gear Pulley	VNL1921
	15	Loading Gear	VNL1922
	16	Drive Gear	VNL1923
	17	SW Lever	VNL1925
	18	Clamper Plate	VNE2251
	19	Bridge	VNE2252
	20	Clamper	VNL1924
	21	Screw	JGZ17P028FMC
	22	Screw	Z39-019
	23	Tray	VNL1920

■ Apply Position of Lubricant


Lubricating Oil
GYA1001
Around the shaft
No. 11
Loading Base
Lubricating Oil
GYA1001
No. 13
Drive Cam
• Rear View
Inner side of a ditch
Lubricating Oil
GYA1001
Inner side of a ditch
Lubricating Oil
GYA1001
Lubricating Oil
GYA1001
Lubricating Oil
GYA1001
• Top View
No. 13
Drive Cam
No. 23
Tray
Daifree
GEM1036
Concave of unevenness
• Top View
Concave of unevenness
Daifree
GEM1036
No. 23
Tray
Daifree
GEM1036
Concave of unevenness
Inner side of a ditch
Daifree
GEM1036
• Bottom View
Side of the rib
Daifree
GEM1036

2.4 TRAVERSE MECHANISM ASSY-S


17 (Torque : 0.12 ± 0.01 N•m)
Silicone Adhesive GEM1037
12
8
3
18
18
10
10
18
7
1
6
14
9
19
Silicone Adhesive GEM1037
4 (Adjustment Screw)
4 (Adjustment Screw)
17
(Torque : 0.12 ± 0.01 N•m)
16
13
5
Screw Tight GYL1001
15
5
Silicone Adhesive GEM1037
17 (Torque : 0.12 ± 0.01 N•m)
16
2
11

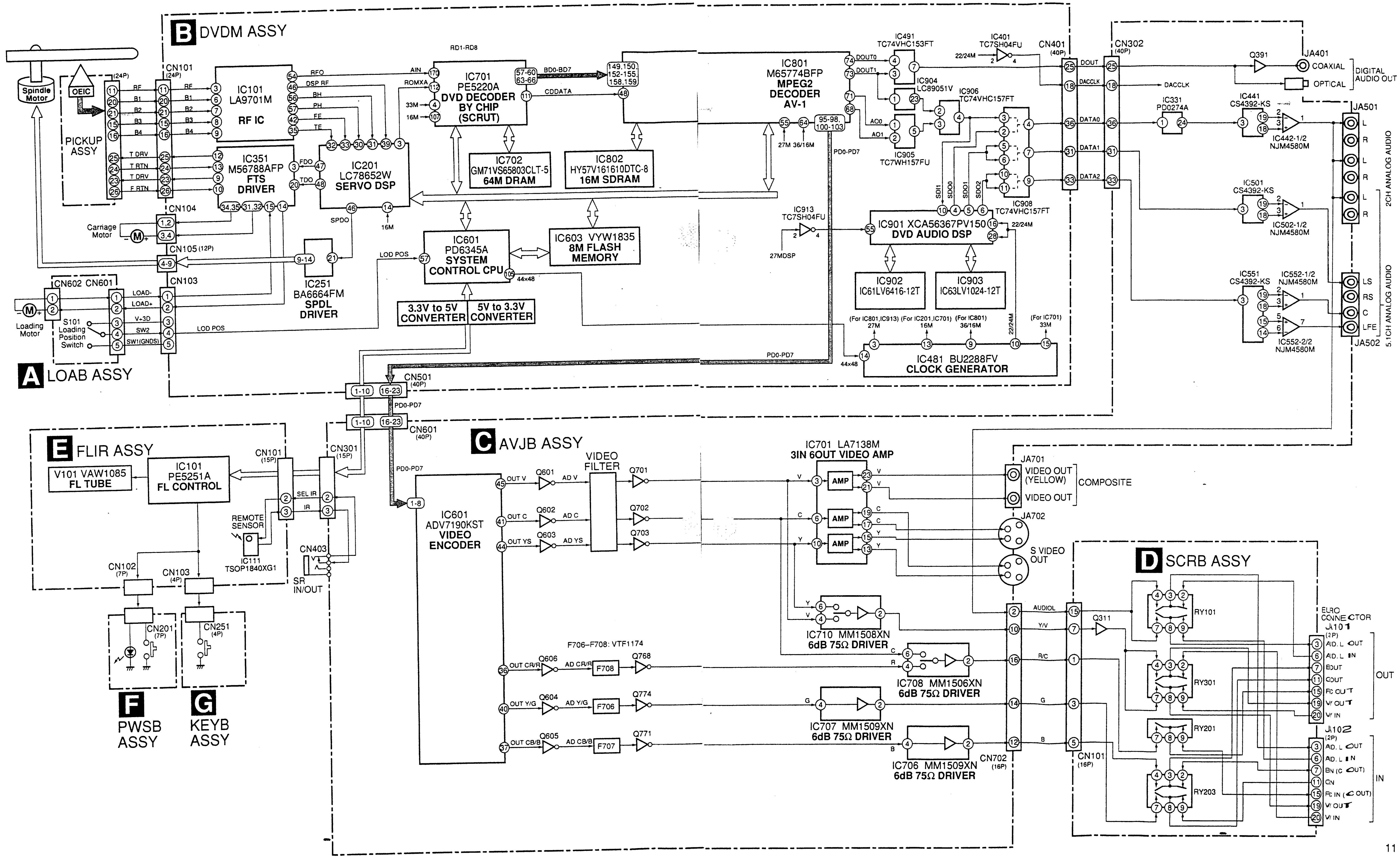
• TRAVERSE MECHANISM ASSY-S PARTS LIST

Mark	No.	Description	Part No.
	1	Spindle Motor	VXM1088 (or VXM1089)
	2	Stepping Motor (CARRIAGE)	VXM1090 (or VXM1091)
	3	Pickup Assy-S	OXX8003
	4	Skew Screw	VBA1080
	5	Skew Spring	VBH1335
	6	Guide Bar	VLL1514
	7	Sub Guide Bar	VLL1515
	8	Hold Spring	VNC1017
	9	Joint Spring	VNC1019
	10	Support Spring	VNC1020
NSP	11	Mechanism Chassis	VNE2248
	12	Slider	VNL1811
	13	Spacer	VNL1913
	14	Joint	VNL1914
	15	FFC Holder	VNL1915
	16	Screw	BBZ20P050FZK
	17	Screw	OBA8009
	18	Screw	PMA26P100FMC
	19	Damper Sheet	VEB1335

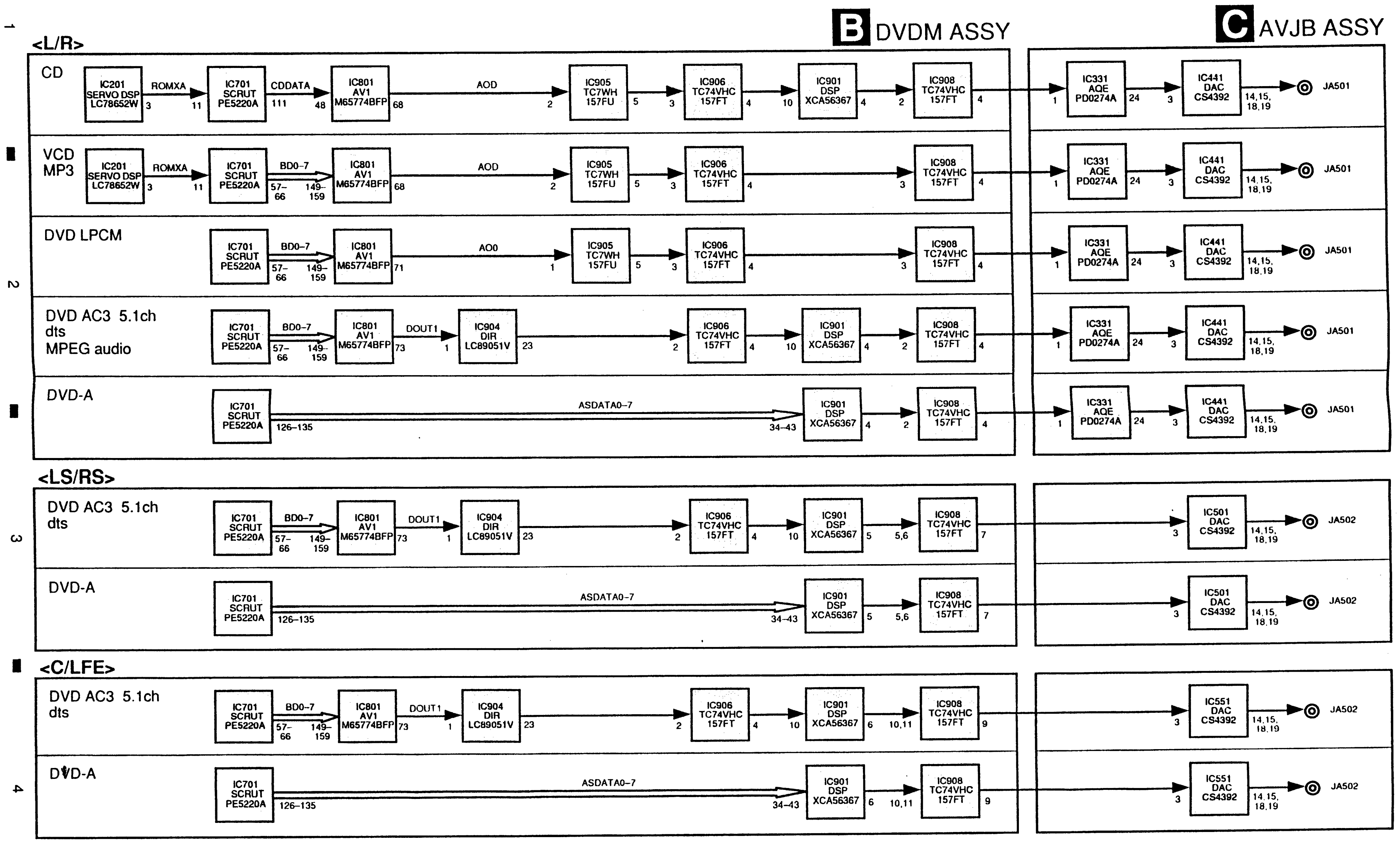
3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM

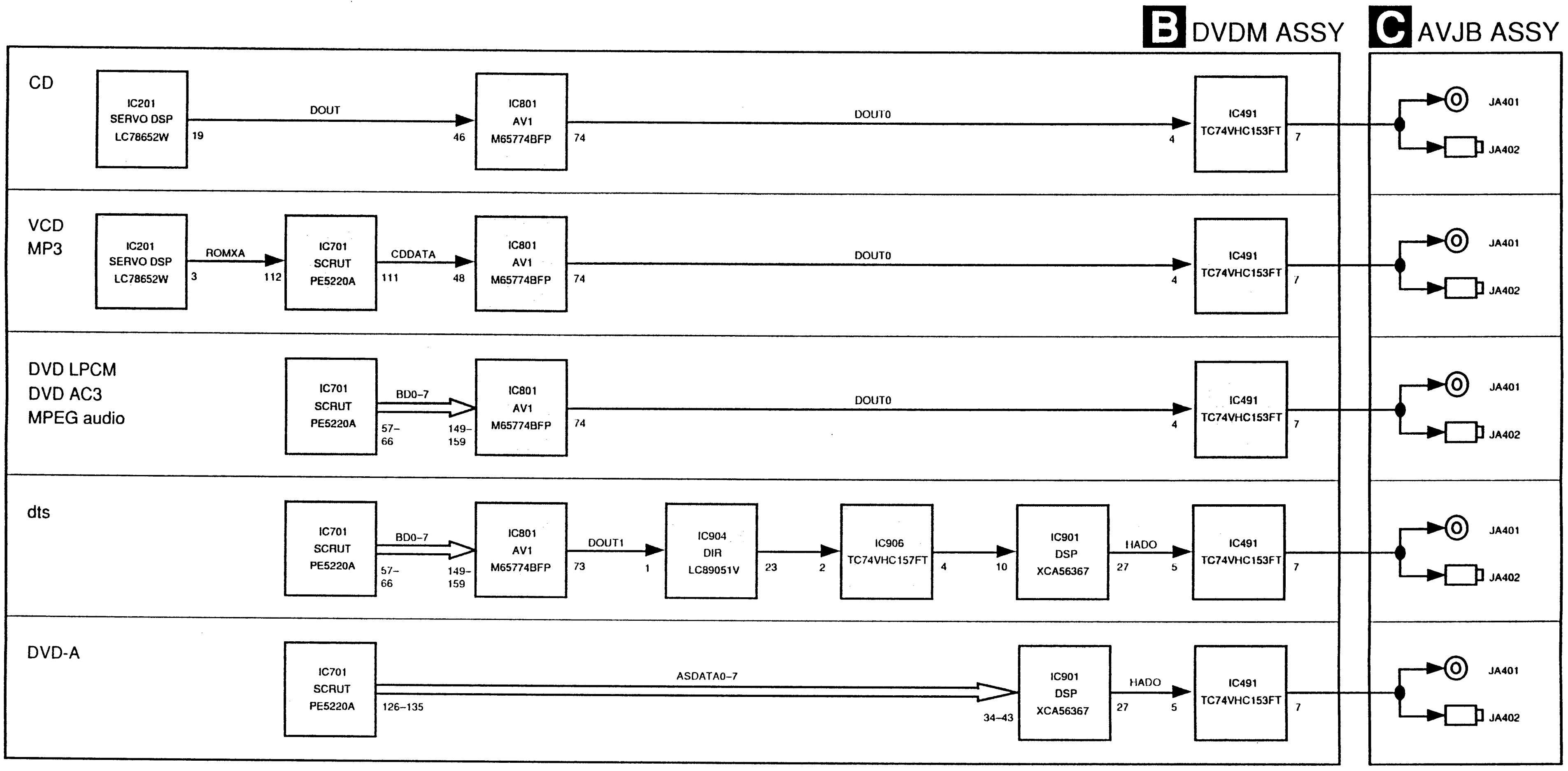
3.1.1 SIGNAL ROUTE


B DVDM ASSY
Spindle Motor
OEIC
PICKUP ASSY
CN101 (24P)
RF
B1
B2
B3
B4
T DRV
T RTN
F DRV
F RTN
IC101 LA9701M RF IC
RFO
DSP RF
BH
PH
FE
TE
IC351 M56788AFP FTS DRIVER
FDO
TDO
IC201 LC78652W SERVO DSP
SPDO
16M
CN104
Carriage Motor
CN105 (12P)
IC251 BA6664FM SPDL DRIVER
RD1-RD8
AIN
ROMXA
33M
16M
IC701 PE5220A DVD DECODER BY CHIP (SCRUT)
BD0-BD7
CDDATA
IC702 GM71VS65803CLT-5 64M DRAM
IC802 HY57V161610DTC-8 16M SDRAM
IC801 M65774BFP MPEG2 DECODER AV-1
27M 36/16M
PD0-PD7
IC601 PD6345A SYSTEM CONTROL CPU
LOD POS
44x48
IC603 VYW1835 8M FLASH MEMORY
3.3V to 5V CONVERTER
5V to 3.3V CONVERTER
IC491 TC74VHC153FT
IC401 TC7SH04FU
22/24M
DOUT0
DOUT1
IC904 LC89051V
IC906 TC74VHC157FT
AC0
AO1
IC905 TC7WH157FU
SDI1
SDO0
SDO1
SDO2
IC908 TC74VHC157FT
IC913 TC7SH04FU
27MDSP
IC901 XCA56367PV150 DVD AUDIO DSP
IC902 IC61LV6416-12T
IC903 IC63LV1024-12T
(For IC801,IC913) 27M
(For IC201,IC701) 16M
(For IC801) 36/16M
22/24M
(For IC701) 33M
IC481 BU2288FV CLOCK GENERATOR
CN401 (40P)
CN302 (40P)
DOUT
DACCLK
DATA0
DATA1
DATA2
Q391
JA401
COAXIAL
OPTICAL
DIGITAL AUDIO OUT
IC331 PD0274A
IC441 CS4392-KS
IC442-1/2 NJM4580M
IC501 CS4392-KS
IC502-1/2 NJM4580M
IC551 CS4392-KS
IC552-1/2 NJM4580M
IC552-2/2 NJM4580M
JA501
L
R
2CH ANALOG AUDIO
LS
RS
C
LFE
JA502
5.1CH ANALOG AUDIO
CN602 CN601
CN103
LOAD-
LOAD+
V+3D
SW2
SW1(GNDS)
Loading Motor
S101 Loading Position Switch
A LOAB ASSY
CN501 (40P)
1-10
16-23
CN601 (40P)
E FLIR ASSY
V101 VAW1085 FL TUBE
IC101 PE5251A FL CONTROL
CN101 (15P)
CN301 (15P)
SEL IR
IR
REMOTE SENSOR
IC111 TSOP1840XG1
CN403
SR IN/OUT
CN102 (7P)
CN103 (4P)
CN201 (7P)
CN251 (4P)
F PWSB ASSY
G KEYB ASSY
C AVJB ASSY
1-8
IC601 ADV7190KST VIDEO ENCODER
OUT V
OUT C
OUT YS
Q601
Q602
Q603
AD V
AD C
AD YS
VIDEO FILTER
Q701
Q702
Q703
IC701 LA7138M 3IN 6OUT VIDEO AMP
AMP
JA701
VIDEO OUT (YELLOW)
VIDEO OUT
COMPOSITE
JA702
S VIDEO OUT
F706–F708: VTF1174
OUT CR/R
OUT Y/G
OUT CB/B
Q606
Q604
Q605
AD CR/R
AD Y/G
AD CB/B
F708
F706
F707
Q768
Q774
Q771
IC710 MM1508XN 6dB 75Ω DRIVER
IC708 MM1506XN 6dB 75Ω DRIVER
IC707 MM1509XN 6dB 75Ω DRIVER
IC706 MM1509XN 6dB 75Ω DRIVER
CN702 (16P)
CN101 (16P)
AUDIOL
Y/V
R/C
G
B
Q311
D SCRB ASSY
RY101
RY301
RY201
RY203
EURO CONNECTOR
JA101 (2P)
AUD. L OUT
AUD. L IN
B OUT
C OUT
R/C OUT
V OUT
V IN
OUT
JA102 (2P)
AUD. L OUT
AUD. L IN
B IN (C OUT)
CIN
R IN (C OUT)
V OUT
V IN
IN

3.1.2 AUDIO DATA STREAM (ANALOG OUTPUT)

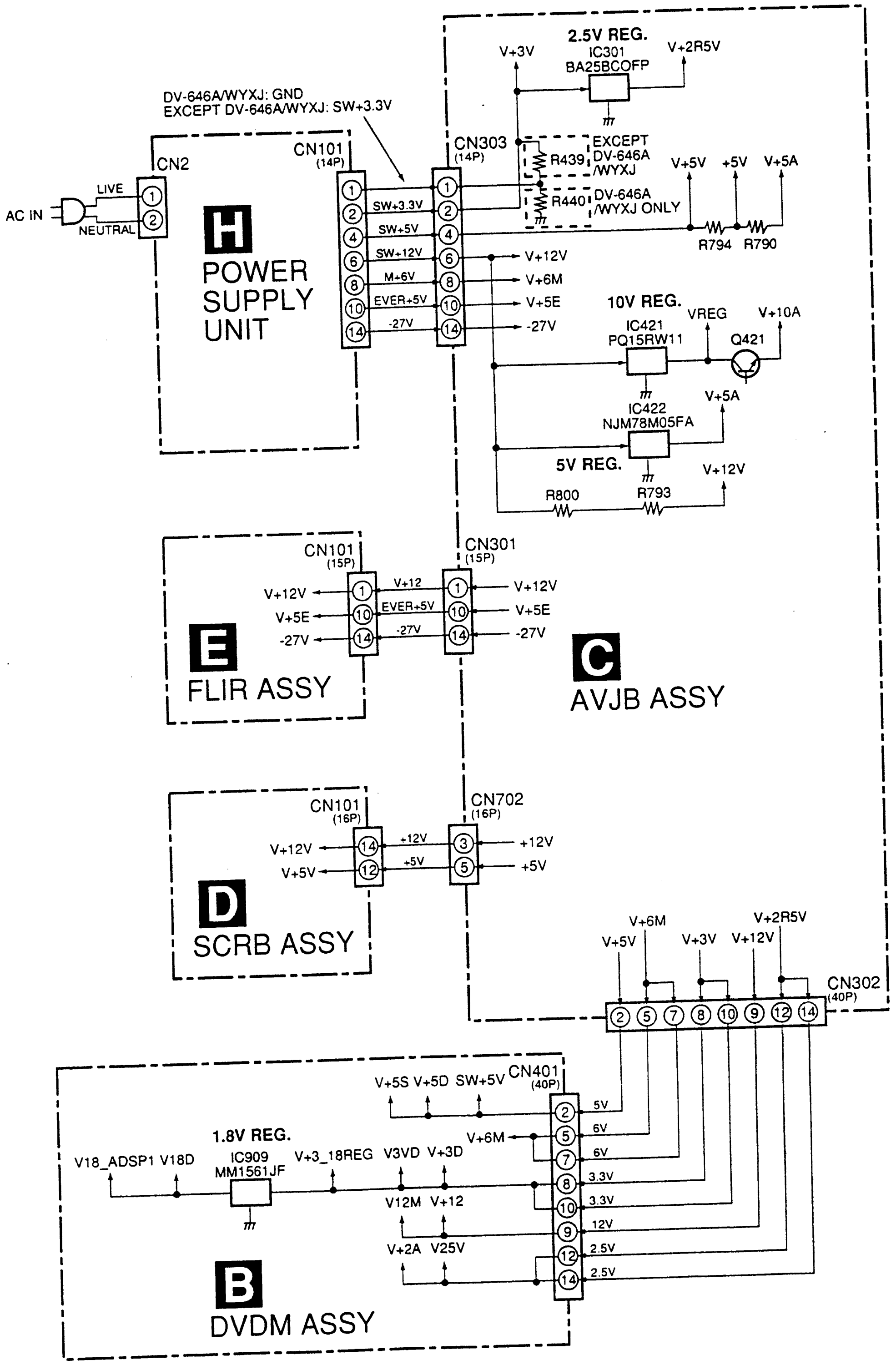

B DVDM ASSY
C AVJB ASSY
<L/R>
CD
IC201 SERVO DSP LC78652W
ROMXA
IC701 SCRUT PE5220A
CDDATA
IC801 AV1 M65774BFP
AOD
IC905 TC7WH 157FU
IC906 TC74VHC 157FT
IC901 DSP XCA56367
IC908 TC74VHC 157FT
IC331 AQE PD0274A
IC441 DAC CS4392
JA501
VCD
MP3
BD0-7
DVD LPCM
AO0
DVD AC3 5.1ch
dts
MPEG audio
DOUT1
IC904 DIR LC89051V
DVD-A
ASDATA0-7
126-135
34-43
<LS/RS>
IC501 DAC CS4392
JA502
<C/LFE>
IC551 DAC CS4392
14,15, 18,19

3.1.3 AUDIO DATA STREAM (COAXIAL/OPTICAL OUTPUT)


B DVDM ASSY
C AVJB ASSY
CD
IC201 SERVO DSP LC78652W
DOUT
IC801 AV1 M65774BFP
DOUT0
IC491 TC74VHC153FT
JA401
JA402
VCD
MP3
ROMXA
IC701 SCRUT PE5220A
CDDATA
DVD LPCM
DVD AC3
MPEG audio
BD0-7
dts
DOUT1
IC904 DIR LC89051V
IC906 TC74VHC157FT
IC901 DSP XCA56367
HADO
DVD-A
ASDATA0-7
126-135
34-43

3.1.4 POWER SUPPLY BLOCK

A
B
C
D


DV-646A/WYXJ: GND
EXCEPT DV-646A/WYXJ: SW+3.3V
AC IN
LIVE
NEUTRAL
CN2
H
POWER SUPPLY UNIT
CN101 (14P)
SW+3.3V
SW+5V
SW+12V
M+6V
EVER+5V
-27V
CN303 (14P)
2.5V REG.
IC301
BA25BCOFP
V+3V
V+2R5V
R439
EXCEPT DV-646A /WYXJ
R440
DV-646A /WYXJ ONLY
V+5V
+5V
V+5A
R794
R790
V+12V
V+6M
V+5E
-27V
10V REG.
IC421
PQ15RW11
VREG
V+10A
Q421
IC422
NJM78M05FA
V+5A
5V REG.
V+12V
R800
R793
CN101 (15P)
V+12V
V+5E
-27V
V+12
EVER+5V
-27V
CN301 (15P)
V+12V
V+5E
-27V
E
FLIR ASSY
C
AVJB ASSY
CN101 (16P)
V+12V
V+5V
+12V
+5V
CN702 (16P)
+12V
+5V
D
SCRB ASSY
V+5V
V+6M
V+3V
V+12V
V+2R5V
CN302 (40P)
V+5S V+5D SW+5V
CN401 (40P)
5V
6V
6V
3.3V
3.3V
12V
2.5V
2.5V
V+6M
1.8V REG.
IC909
MM1561JF
V18_ADSP1 V18D
V+3_18REG
V3VD V+3D
V12M V+12
V+2A V25V
B
DVDM ASSY

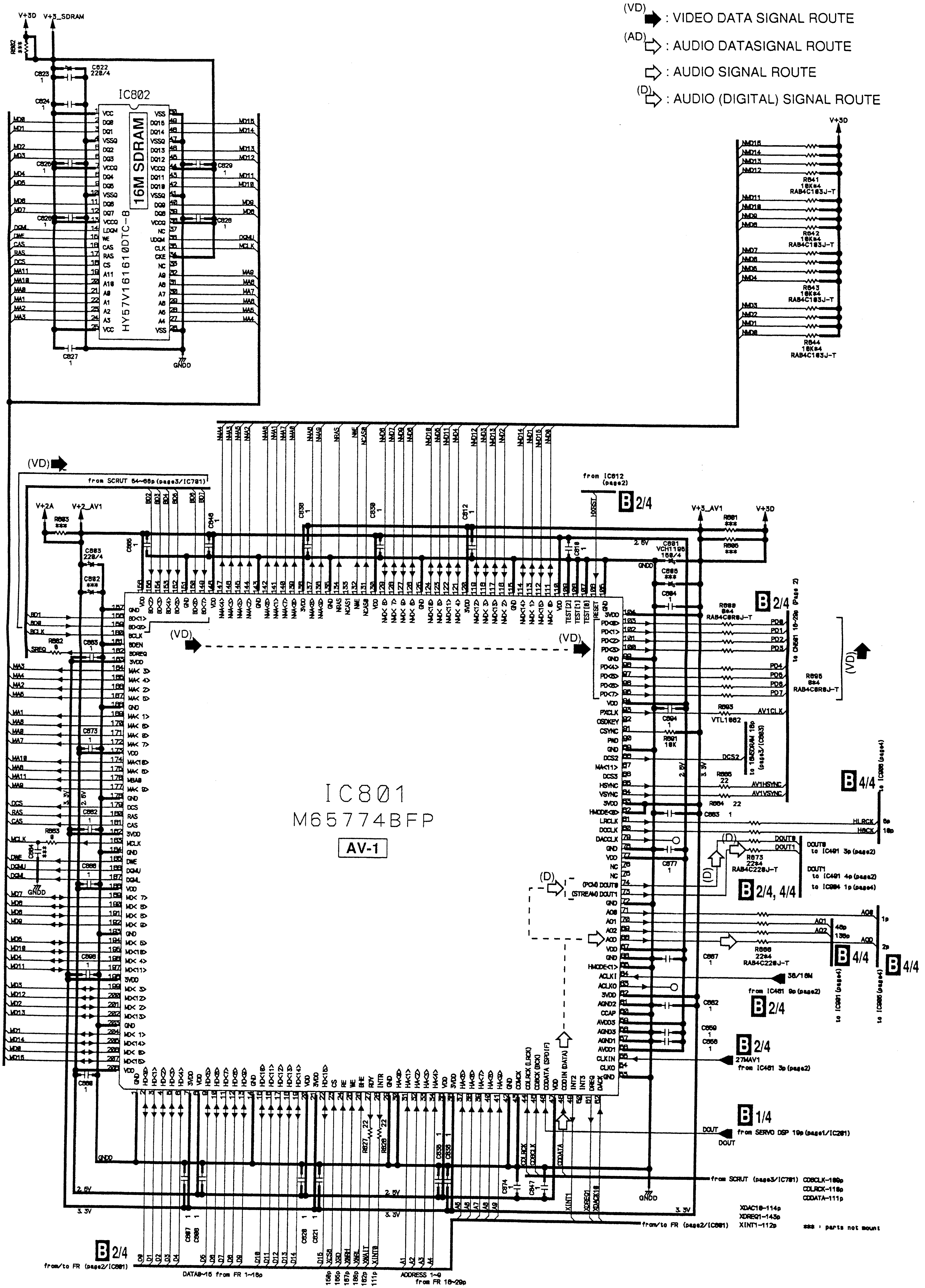
(V) : RF (VIDEO) SIGNAL ROUTE

(VD) : VIDEO DATA SIGNAL ROUTE

(AD) : AUDIO DATASIGNAL ROUTE

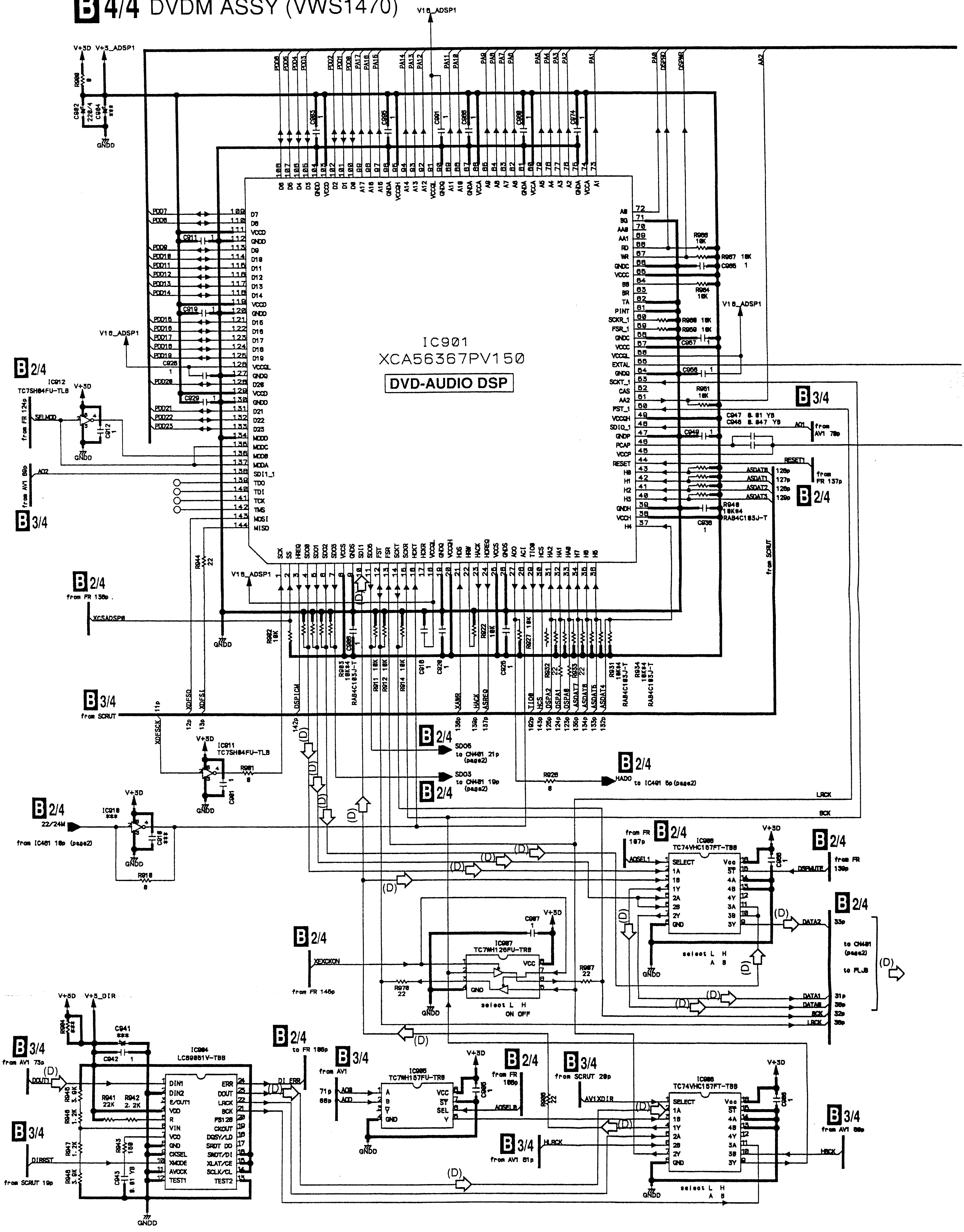
: AUDIO SIGNAL ROUTE

(D) : AUDIO (DIGITAL) SIGNAL ROUTE


IC802
16M SDRAM
HY57V161610DTC-8
V+3D
V+3_SDRAM
C822 220/4
IC801
M65774BFP
AV-1
R641 10K×4 RAB4C103J-T
R642 10K×4 RAB4C103J-T
R643 10K×4 RAB4C103J-T
R644 10K×4 RAB4C103J-T
from SCRUT 64~66p (page3/IC701)
from IC812 (page2)
B 2/4
V+3_AV1
V+2A
V+2_AV1
C881 VCH1195 100/4
R669 8×4 RAB4C8R0J-T
R695 8×4 RAB4C8R0J-T
to CN801 16~29p (page 2)
R893 VTL1082
to 16MSDRAM 16p (page3/IC803)
B 4/4
to IC805 (page4)
R673 22×4 RAB4C220J-T
DOUT0 to IC401 3p (page2)
DOUT1 to IC401 4p (page2) to IC904 1p (page4)
B 2/4, 4/4
R666 22×4 RAB4C220J-T
to IC801 (page4)
to IC805 (page4)
from IC401 9p (page2)
27MAV1 from IC401 3p (page2)
B 1/4
DOUT from SERVO DSP 19p (page1/IC201)
from SCRUT (page3/IC701) CDBCLK-109p CDLRCK-110p CDDATA-111p
XDACK0-114p XDREQ1-143p XINT1-112p
from/to FR (page2/IC601)
*** : parts not mount
B 2/4
from/to FR (page2/IC601)
DATA0~15 from FR 1~16p
ADDRESS 1~9 from FR 18~29p

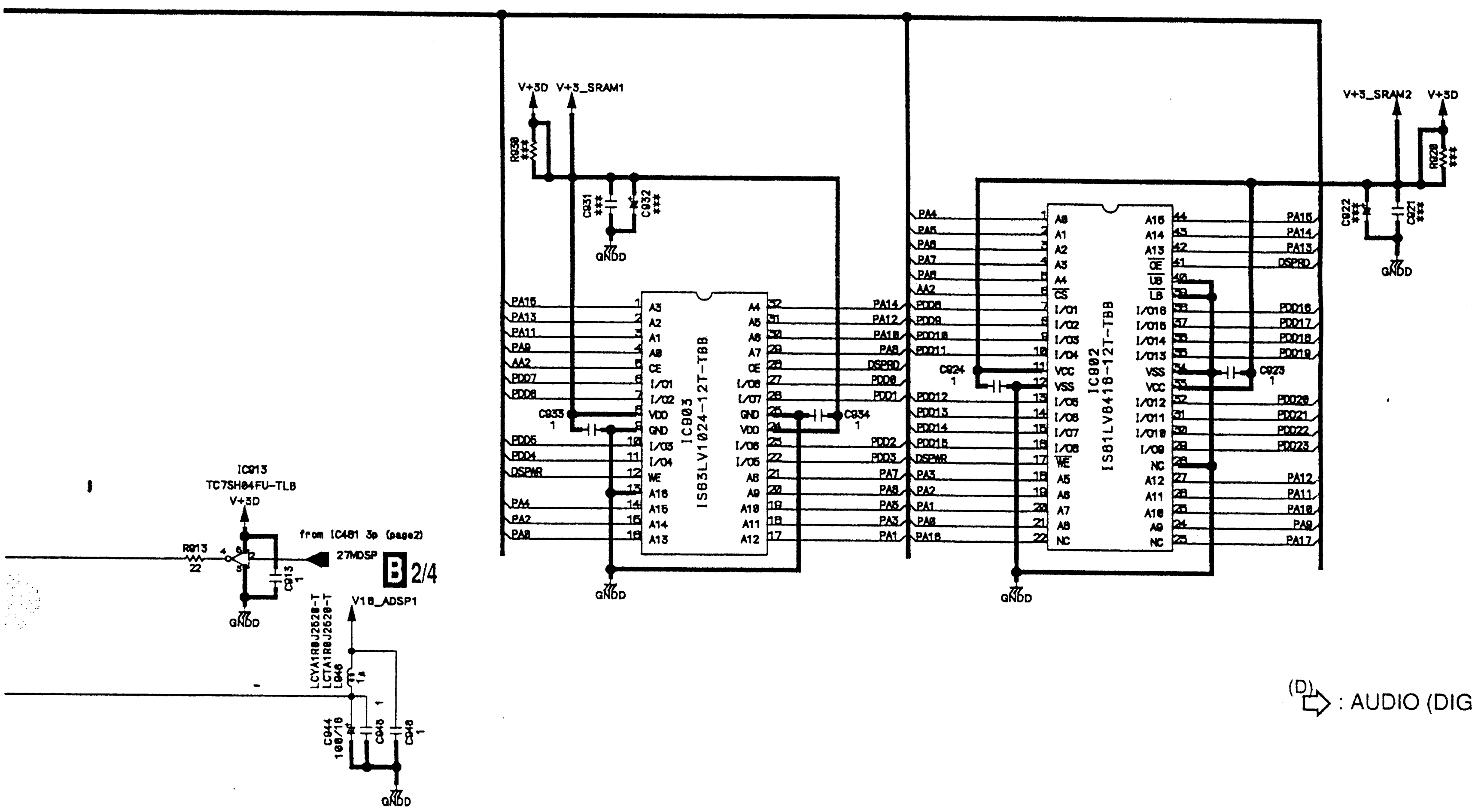
3.6 DVDM ASSY (4/4)

B 4/4 DVDM ASSY (VWS1470)


A
B
C
D
V18_ADSP1
V+3D
V+3_ADSP1
GNDD
IC901
XCA56367PV150
DVD-AUDIO DSP
B 2/4
IC912
TC7SH04FU-TLB
from FR 124p
SELMOD
from AV1 66p
AO2
B 3/4
B 2/4
from FR 138p
XCSADSP0
B 3/4
from SCRUT
XDFSCK
XDFSO
XDFS1
IC911
TC7SH04FU-TLB
R981
B 2/4
22/24M
from IC481 18p (page2)
IC918
R918
B 2/4
SD05
to CN481 21p (page2)
SD03
to CN481 19p (page2)
B 2/4
HADO
to IC481 6p (page2)
R928
LRCK
BCK
from FR 137p
RESET1
ASDAT0
ASDAT1
ASDAT2
ASDAT3
AO1
from AV1 78p
from SCRUT
B 3/4
B 2/4
IC988
TC74VHC157FT-TBB
from FR 197p
ADSEL1
DSPMUTE
from FR 130p
B 2/4
DATA2
to CN481 (page2)
to FLJB
DATA1
DATA0
BCK
LRCK
B 2/4
XEXCKON
from FR 146p
IC987
TC7WH126FU-TR8
select L H
ON OFF
R976
R987
select L H
A B
V+3_DIR
IC984
LC89051V-TBB
B 3/4
from AV1 73p
DOUT1
B 3/4
DIRRST
from SCRUT 19p
B 2/4
to FR 186p
DI ERR
B 3/4
from AV1
IC985
TC7WH157FU-TR8
B 2/4
from FR 186p
ADSEL0
B 3/4
from SCRUT 20p
AV1XDIR
B 3/4
HLRCK
from AV1 61p
IC986
TC74VHC157FT-TBB
B 3/4
from AV1 60p
HBCK
select L H
A B
(D)

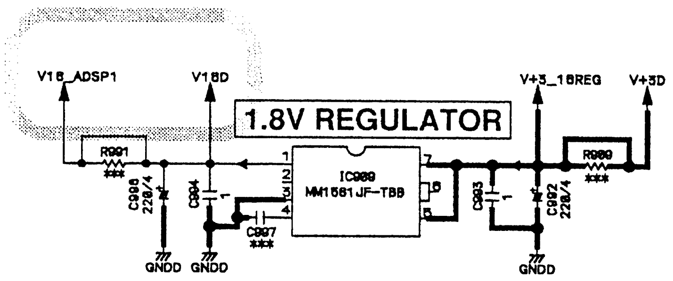
▢ : The power supply is shown with the marked box.

A


V+3D
V+3_SRAM1
R930
***
C931
***
C932
***
GNDD
IC903
IS63LV1024-12T-TBB
A3
A2
A1
A0
CE
I/O1
I/O2
VDD
GND
I/O3
I/O4
WE
A16
A15
A14
A13
A4
A5
A6
A7
OE
I/O8
I/O7
GND
VDD
I/O6
I/O5
A8
A9
A10
A11
A12
C933
1
C934
1
PA15
PA13
PA11
PA9
AA2
PDD7
PDD6
PDD5
PDD4
DSPWR
PA4
PA2
PA0
PA14
PA12
PA10
PA8
DSPRD
PDD0
PDD1
PDD2
PDD3
PA7
PA6
PA5
PA3
PA1
IC902
IS61LV6416-12T-TBB
A0
A1
A2
A3
A4
CS
I/O1
I/O2
I/O3
I/O4
VCC
VSS
I/O5
I/O6
I/O7
I/O8
WE
A5
A6
A7
A8
NC
A15
A14
A13
OE
UB
LB
I/O16
I/O15
I/O14
I/O13
VSS
VCC
I/O12
I/O11
I/O10
I/O9
NC
A12
A11
A10
A9
NC
C924
1
C923
1
PDD8
PDD9
PDD10
PDD11
PDD12
PDD13
PDD14
PDD15
PDD16
PDD17
PDD18
PDD19
PDD20
PDD21
PDD22
PDD23
PA16
PA17
V+3_SRAM2
V+3D
R920
***
C922
***
C921
***
IC913
TC7SH04FU-TLB
R913
22
C913
1
from IC401 3p (page2)
27MDSP
B 2/4
V18_ADSP1
LCYA1R0J2520-T
LCTA1R0J2520-T
L946
1µ
C944
100/10
C945
1
C946
1

B

(D) ⇨ : AUDIO (DIGITAL) SIGNAL ROUTE


V18_ADSP1
V18D
1.8V REGULATOR
V+3_18REG
V+3D
R991
***
C998
220/4
C994
1
C997
***
IC989
MM1561JF-TBB
C993
1
C992
220/4
R989
***
GNDD
GNDD
GNDD

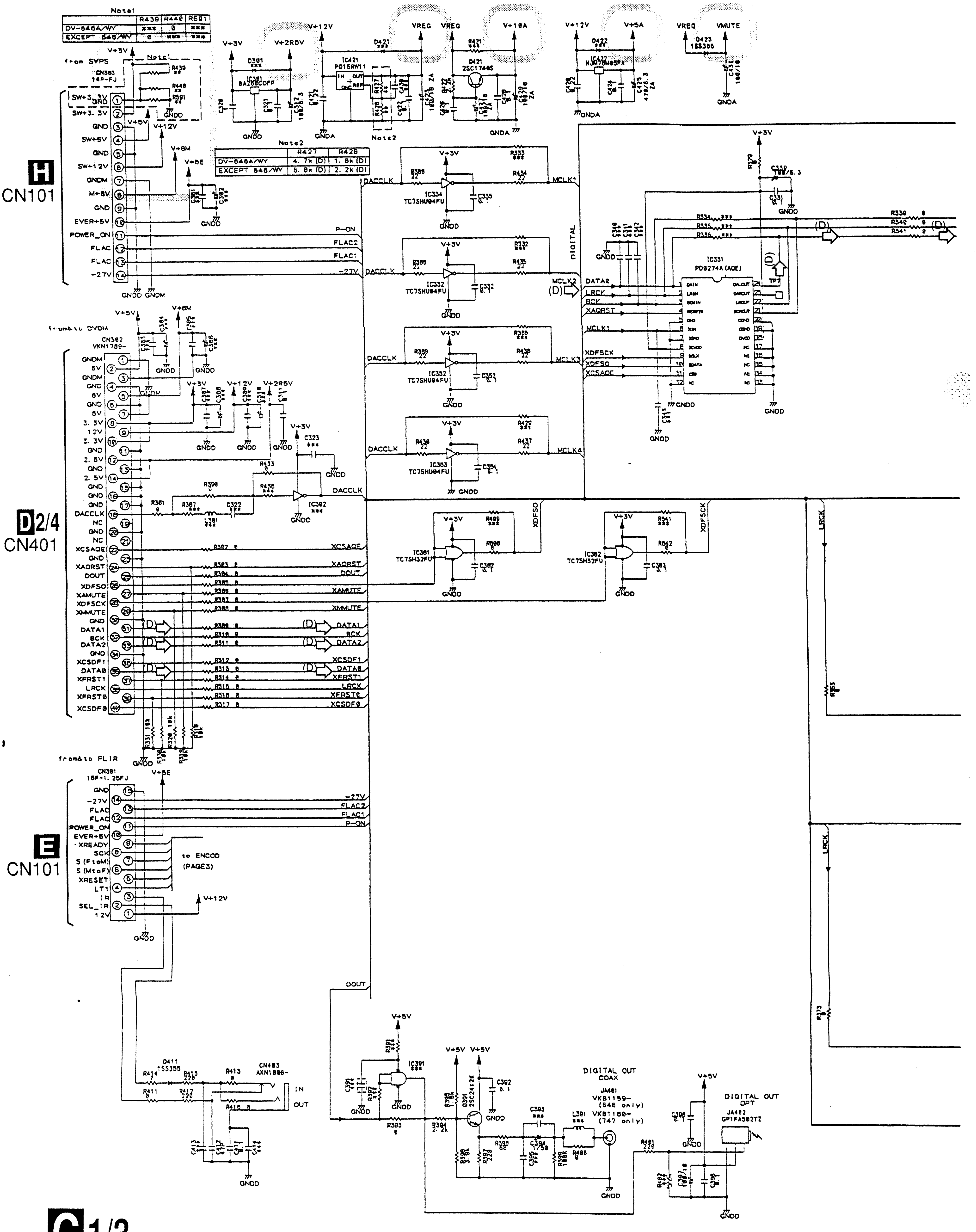
C

D

*** : parts not mounted

3.7 AVJB ASSY (1/3)

C 1/3 AVJB ASSY (VWV1866)


from SYPS
CN383 14P-FJ
H CN101
SW+3.3V GND
SW+3.3V
GND
SW+5V
GND
SW+12V
GNDM
M+8V
GND
EVER+5V
POWER_ON
FLAC
FLAC
-27V
GNDD GNDM
IC381 BA268COFP
IC421 PQ15RW11
Q421 2SC1740S
IC422 NJM78M05FA
D423 1SS355
V+3V
V+2R5V
V+12V
VREG
V+10A
V+5A
VMUTE
GNDD
GNDA
P-ON
FLAC2
FLAC1
DACCLK
MCLK1
MCLK2
MCLK3
MCLK4
IC334 TC7SHU04FU
IC332 TC7SHU04FU
IC352 TC7SHU04FU
IC353 TC7SHU04FU
DIGITAL
IC331 PD8274A (AQE)
DATA0
LRCK
BCK
XAQRST
XDFSCK
XDFSO
XCSAQE
(D)
TP1
from&to DVDM
CN382 VKN1789-
D 2/4 CN401
GNDM
5V
GND
8V
3.3V
12V
2.5V
DACCLK
NC
XCSAQE
XAQRST
DOUT
XDFSO
XAMUTE
XDFSCK
XMMUTE
DATA1
BCK
DATA2
XCSDF1
DATA0
XFRST1
LRCK
XFRST0
XCSDF0
IC382
IC361 TC7SH32FU
IC362 TC7SH32FU
from&to FLIR
CN381 15P-1.25FJ
E CN101
GND
-27V
FLAC
POWER_ON
EVER+5V
XREADY
SCK
S (FtoM)
S (MtoF)
XRESET
LT1
IR
SEL_IR
12V
to ENCOD (PAGE3)
V+5E
V+8M
CN403 AKN1006-
IN
OUT
D411 1SS355
IC391
Q391 2SC2412K
DIGITAL OUT COAX
JA481 VKB1159- (646 only) VKB1160- (747 only)
DIGITAL OUT OPT
JA482 GP1FA502TZ
L391
DOUT

Note1

	R438	R440	R591
DV-646A/WY	***	0	***
EXCEPT 646/WY	0	***	***

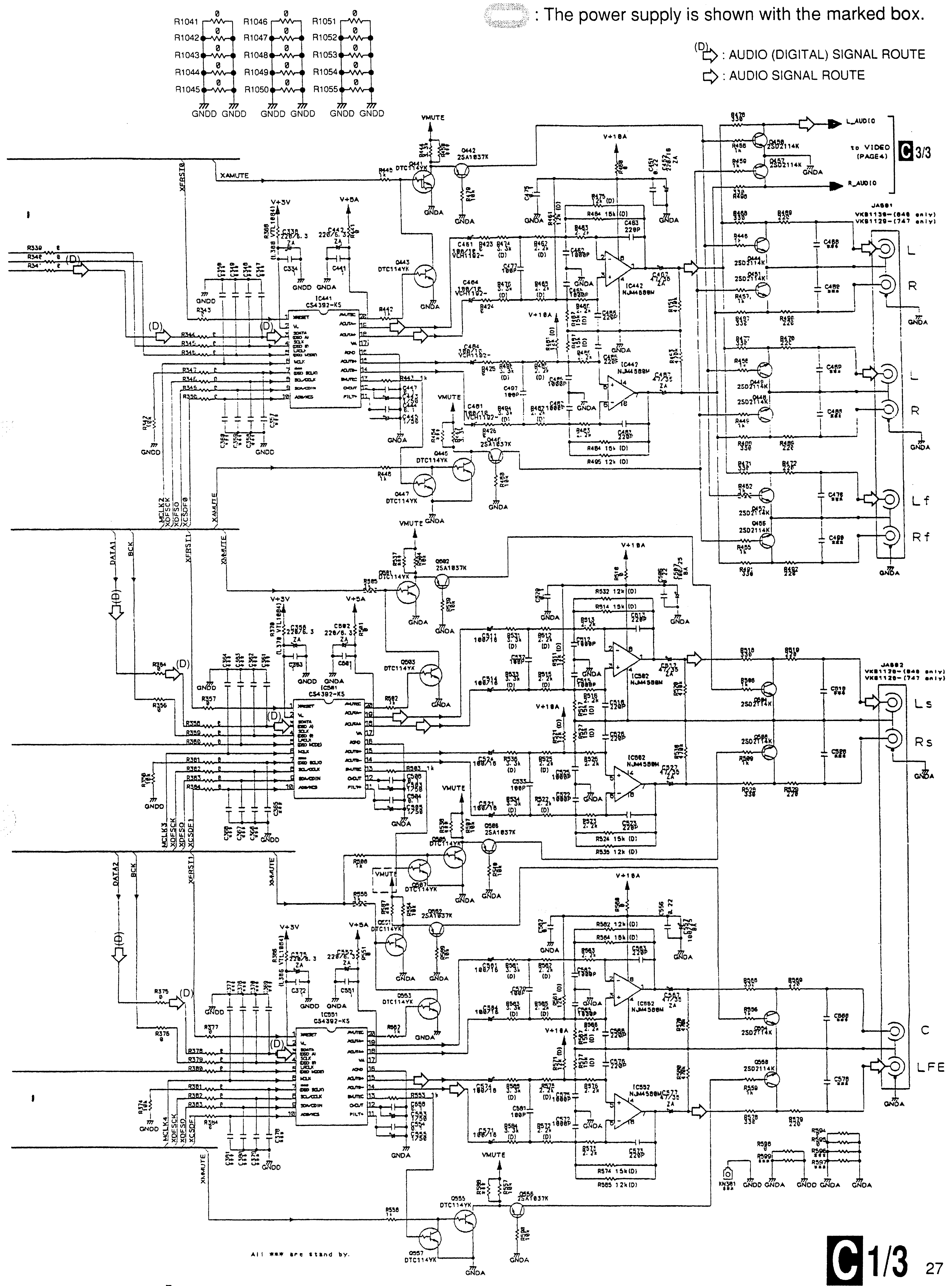
Note2

	R427	R428
DV-646A/WY	4.7k (D)	1.8k (D)
EXCEPT 646/WY	5.6k (D)	2.2k (D)

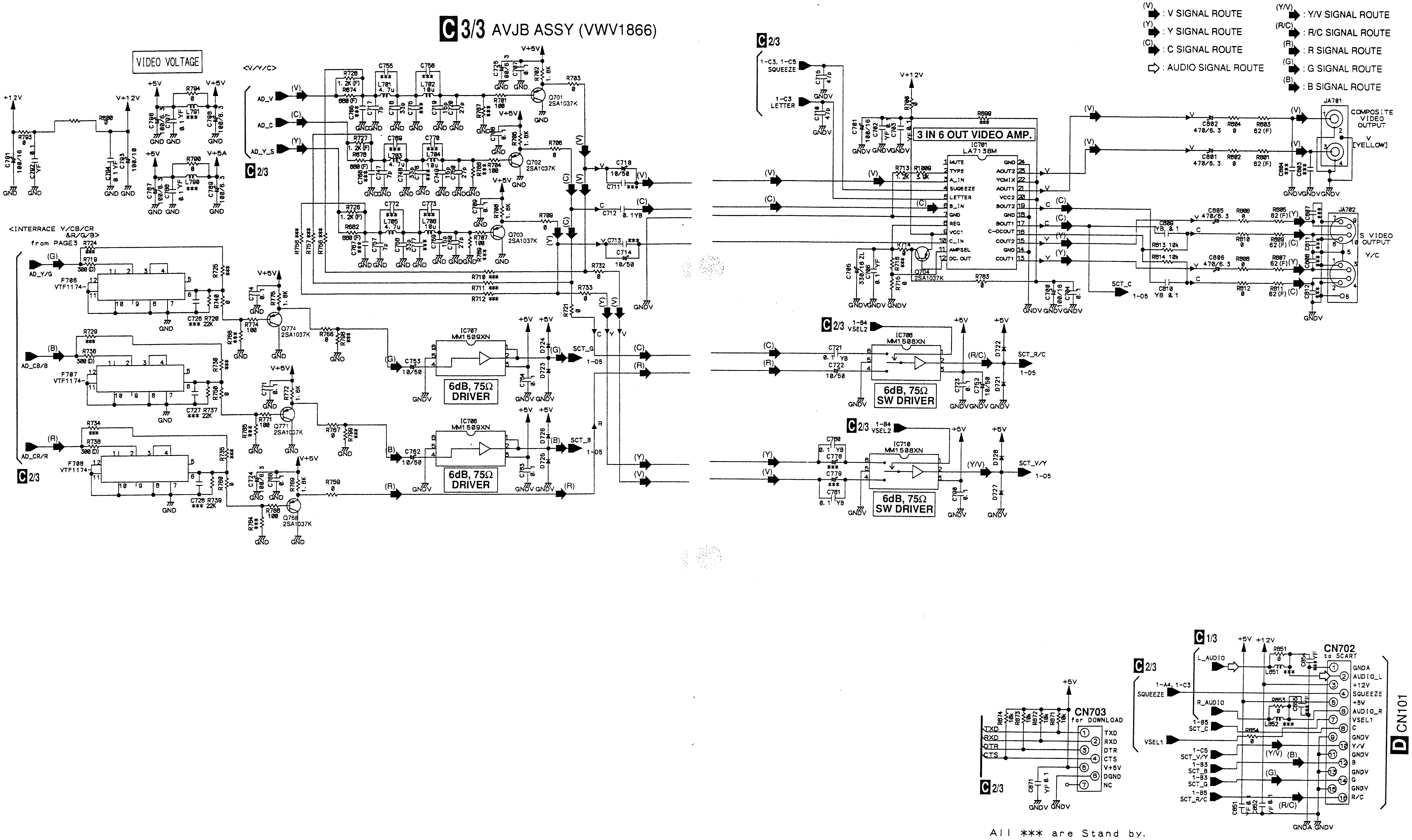
: The power supply is shown with the marked box.

(D) : AUDIO (DIGITAL) SIGNAL ROUTE

: AUDIO SIGNAL ROUTE


R1041
R1042
R1043
R1044
R1045
R1046
R1047
R1048
R1049
R1050
R1051
R1052
R1053
R1054
R1055
GNDD
VMUTE
XAMUTE
XFRST0
XFRST1
V+3V
V+5A
V+10A
IC441
CS4392-KS
IC442
NJM4580M
IC447
NJM4580M
IC501
CS4392-KS
IC502
NJM4580M
IC503
NJM4580M
IC551
CS4392-KS
IC552
NJM4580M
IC553
NJM4580M
DTC114YK
2SA1037K
2SD2114K
GNDA
L_AUDIO
R_AUDIO
to VIDEO (PAGE4)
C 3/3
JA501
VKB1130-(646 only)
VKB1129-(747 only)
JA502
VKB1129-(646 only)
VKB1129-(747 only)
L
R
L
R
Lf
Rf
Ls
Rs
C
LFE
MCLK2
XDFSCK
XDFS0
XCSDF0
MCLK3
XDFSCK
XDFS0
XCSDF1
MCLK4
XDFSCK
XDFS0
XCSDF1
DATA1
BCK
DATA2
BCK
XAMUTE
KN501
All *** are stand by.

3.9 AVJB ASSY (3/3)


C 3/3 AVJB ASSY (VWV1866)
(V) : V SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(C) : C SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
(Y/V) : Y/V SIGNAL ROUTE
(R/C) : R/C SIGNAL ROUTE
(R) : R SIGNAL ROUTE
(G) : G SIGNAL ROUTE
(B) : B SIGNAL ROUTE
VIDEO VOLTAGE
+12V
V+12V
+5V
V+5V
V+5A
<V/Y/C>
AD_V
AD_C
AD_Y_S
C 2/3
<INTERRACE Y/CB/CR &R/G/B> from PAGE3
AD_Y/G
AD_CB/B
AD_CR/R
F706 VTF1174
F707 VTF1174
F708 VTF1174
Q701 2SA1037K
Q702 2SA1037K
Q703 2SA1037K
Q774 2SA1037K
Q771 2SA1037K
Q768 2SA1037K
IC707 MM1509XN
6dB, 75Ω DRIVER
IC706 MM1509XN
6dB, 75Ω DRIVER
SCT_G 1-D5
SCT_B 1-D5
1-C3, 1-C5 SQUEEZE
1-C3 LETTER
3 IN 6 OUT VIDEO AMP.
IC701 LA7138M
MUTE
TYPE
A_IN
SQUEEZE
LETTER
B_IN
GND
REG
VCC1
C_IN
AMPSEL
DC. OUT
GND
AOUT2
YCMIX
AOUT1
VCC2
BOUT2
GND
BOUT1
C-OCOUT
COUT2
GND
COUT1
Q704 2SA1037K
SCT_C 1-D5
JA701
COMPOSITE VIDEO OUTPUT
V [YELLOW]
JA702
S VIDEO OUTPUT Y/C
C 2/3 1-B4 VSEL2
IC708 MM1508XN
6dB, 75Ω SW DRIVER
SCT_R/C 1-D5
C 2/3 1-B4 VSEL2
IC710 MM1508XN
6dB, 75Ω SW DRIVER
SCT_V/Y 1-D5
CN703 for DOWNLOAD
TXD
RXD
DTR
CTS
V+5V
DGND
NC
C 2/3
C 1/3
L_AUDIO
C 2/3
1-A4, 1-C3 SQUEEZE
R_AUDIO
1-B5 SCT_C
VSEL1
1-C5 SCT_V/Y
1-B3 SCT_B
1-B3 SCT_G
1-B5 SCT_R/C
CN702 to SCART
GNDA
AUDIO_L
+12V
SQUEEZE
+5V
AUDIO_R
VSEL1
C
GNDV
Y/V
GNDV
B
GNDV
G
GNDV
R/C
D CN101

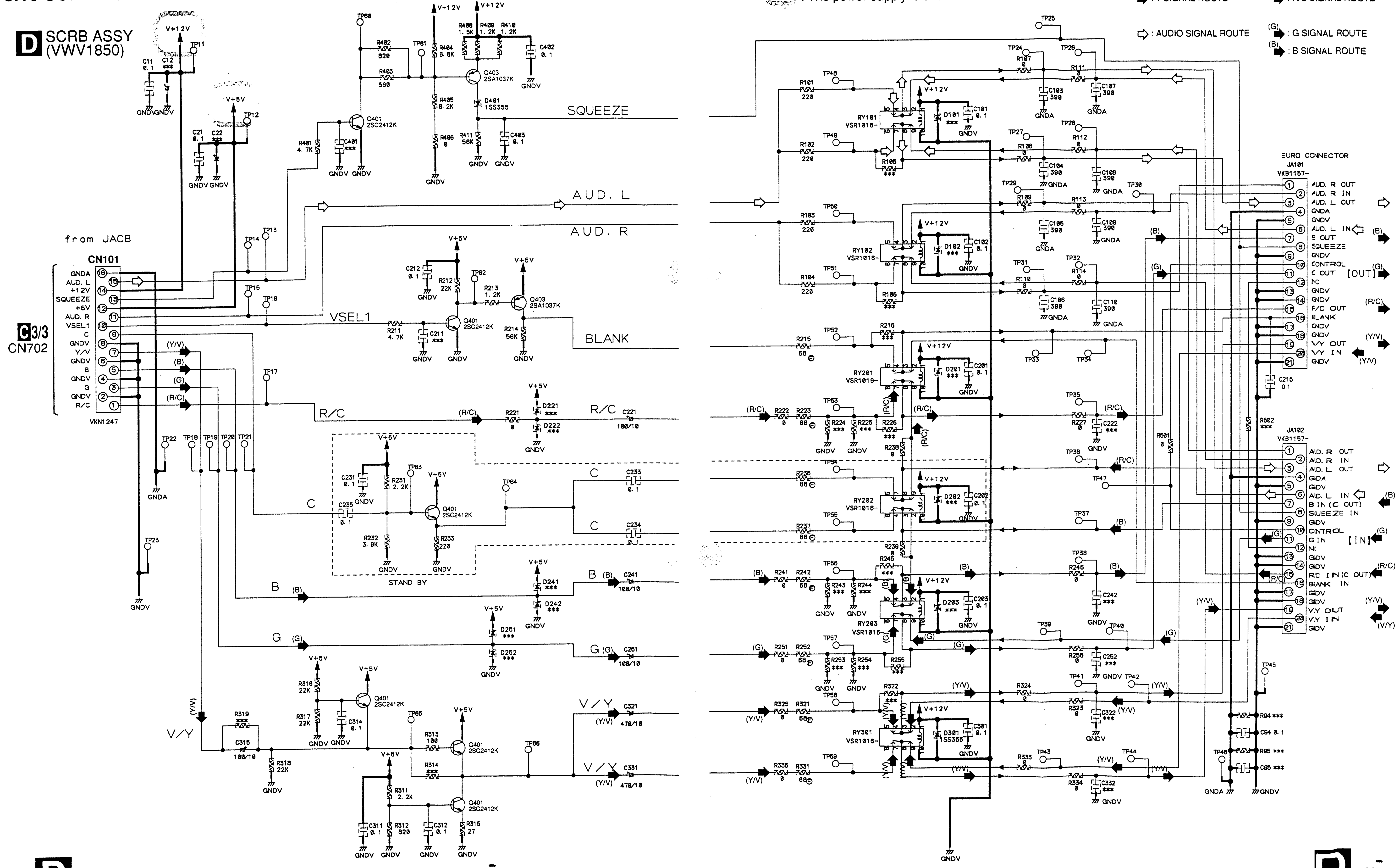
All *** are Stand by.

3.10 SCRB ASSY

D SCRB ASSY (VWV1850)

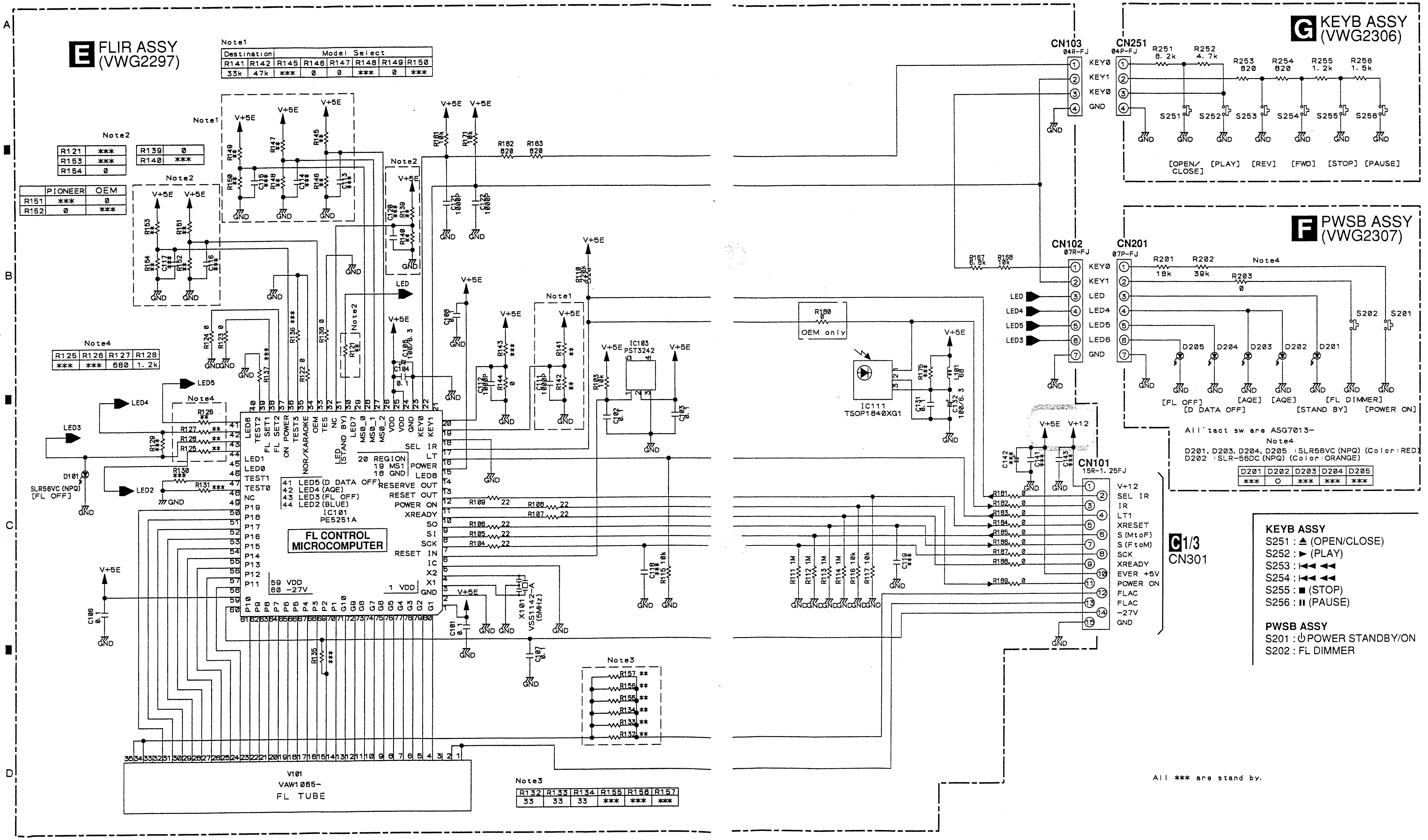
: The power supply is shown with the marked box.

(V) : V SIGNAL ROUTE
(Y) : Y SIGNAL ROUTE
(Y/V) : Y/V SIGNAL ROUTE
(R/C) : R/C SIGNAL ROUTE
: AUDIO SIGNAL ROUTE
(G) : G SIGNAL ROUTE
(B) : B SIGNAL ROUTE


from JACB
CN101
C3/3
CN702
VKN1247
GNDA
AUD. L
+12V
SQUEEZE
+5V
AUD. R
VSEL1
C
GNDV
Y/V
GNDV
B
GNDV
G
GNDV
R/C
V+12V
V+5V
SQUEEZE
AUD. L
AUD. R
VSEL1
BLANK
R/C
C
B
G
V/Y
STAND BY
Q401 2SC2412K
Q403 2SA1037K
D401 1SS355
RY101 VSR1016-
RY102 VSR1016-
RY201 VSR1016-
RY202 VSR1016-
RY203 VSR1016-
RY301 VSR1016-
D301 1SS355
EURO CONNECTOR
JA101 VKB1157-
AUD. R OUT
AUD. R IN
AUD. L OUT
GNDA
GNDV
AUD. L IN
B OUT
SQUEEZE
CONTROL
G OUT
NC
R/C OUT
BLANK
V/Y OUT
V/Y IN
[OUT]
JA102 VKB1157-
B IN (C OUT)
SQUEEZE IN
G IN
R/C IN (C OUT)
BLANK IN
[IN]
GNDV

3.11 FLIR, PWSB and KEYB ASSYS

: The power supply is shown with the marked box.


E FLIR ASSY (VWG2297)
G KEYB ASSY (VWG2306)
F PWSB ASSY (VWG2307)
IC101 PE5251A
FL CONTROL MICROCOMPUTER
IC103 PST3242
IC111 TSOP1840XG1
X101 VSS1142-A (5MHz)
V101 VAW1065- FL TUBE
D101 SLR56VC (NPQ) [FL OFF]
CN103 04R-FJ
CN251 04P-FJ
CN102 07R-FJ
CN201 07P-FJ
CN101 15R-1.25FJ
KEY0
KEY1
KEY0
GND
LED
LED4
LED5
LED6
LED3
LED2
V+12
SEL IR
IR
LT1
XRESET
S (MtoF)
S (FtoM)
SCK
XREADY
EVER +5V
POWER ON
FLAC
FLAC
-27V
GND
V+5E
R180 OEM only
S251
S252
S253
S254
S255
S256
S201
S202
D201
D202
D203
D204
D205
[OPEN/CLOSE]
[PLAY]
[REV]
[FWD]
[STOP]
[PAUSE]
[FL OFF]
[D DATA OFF]
[AQE]
[AQE]
[STAND BY]
[FL DIMMER]
[POWER ON]
C 1/3 CN301
Note1
Note2
Note3
Note4
All *** are stand by.

Note1

Destination		Model Select					
R141	R142	R145	R146	R147	R148	R149	R150
33k	47k	***	0	0	***	0	***

Note2

R121	***
R153	***
R154	0

R139	0
R140	***

	PIONEER	OEM
R151	***	0
R152	0	***

Note4

R125	R126	R127	R128
***	***	680	1.2k

Note3

R132	R133	R134	R155	R156	R157
33	33	33	***	***	***

All tact sw are ASG7013-

Note4

D201, D203, D204, D205 :SLR56VC (NPQ) (Color:RED)
D202 :SLR-56DC (NPQ) (Color:ORANGE)

D201	D202	D203	D204	D205
***	O	***	***	***

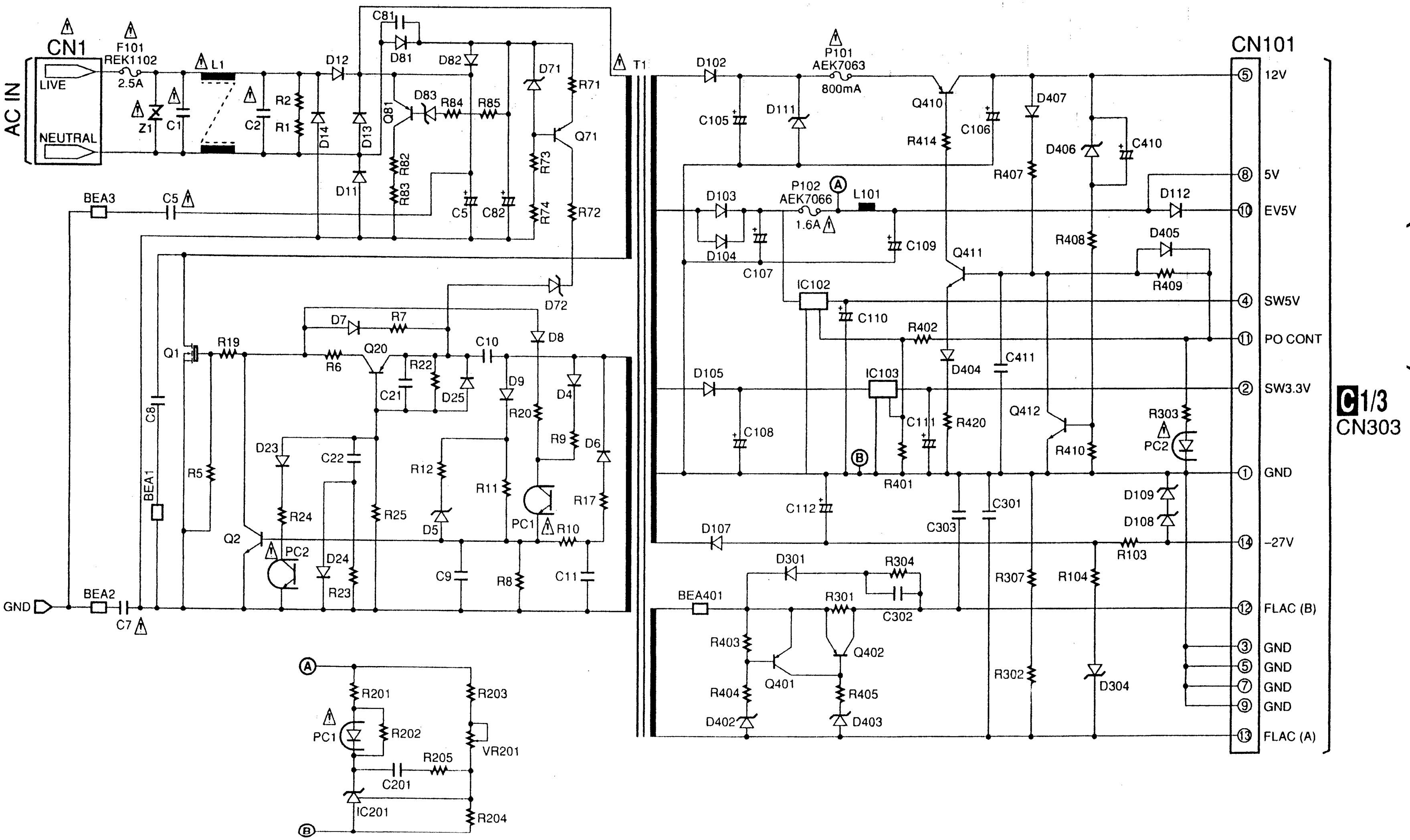
KEYB ASSY
S251 : ▲ (OPEN/CLOSE)
S252 : ► (PLAY)
S253 : ⏮ ◄◄
S254 : ⏮ ◄◄
S255 : ■ (STOP)
S256 : ❚❚ (PAUSE)

PWSB ASSY
S201 : ⏻POWER STANDBY/ON
S202 : FL DIMMER

H POWER SUPPLY UNIT (VWR1340)

《 NOTE OF SPARE PARTS IN POWER SUPPLY (SYPS) UNIT 》

- In case of repairing, use the described parts only to prevent an accident.
- Please write the red √ mark on the board when the primary section of POWER SUPPLY (SYPS) Unit is repaired.
- Please take care to keep the space, not touching other parts when replacing the parts.


AC IN
CN1
LIVE
NEUTRAL
F101
REK1102
2.5A
Z1
C1
L1
C2
R1
R2
D12
D14
D13
D11
C81
D81
D82
Q81
D83
R84
R85
R82
R83
C5
C82
D71
R71
Q71
R73
R74
R72
D72
T1
BEA3
C5
BEA1
BEA2
C7
C8
GND
Q1
R19
R5
D7
R7
R6
Q20
R22
C21
D25
C10
D8
D9
R20
D4
R9
D6
R17
PC1
R10
C11
R8
C9
R11
R12
D5
D23
C22
R24
R25
Q2
PC2
D24
R23
R201
R202
R203
VR201
R205
C201
IC201
R204
D102
C105
D111
P101
AEK7063
800mA
Q410
R414
C106
D407
R407
D406
C410
D103
D104
C107
P102
AEK7066
1.6A
L101
C109
Q411
R408
D112
D405
R409
IC102
C110
R402
D404
C411
D105
IC103
C111
R420
Q412
R410
C108
R401
C112
C303
C301
D107
D301
R304
R301
C302
BEA401
R403
Q401
Q402
R404
R405
D402
D403
R307
R302
R104
D304
R103
D109
D108
R303
CN101
⑤ 12V
⑧ 5V
⑩ EV5V
④ SW5V
⑪ PO CONT
② SW3.3V
① GND
⑭ -27V
⑫ FLAC (B)
③ GND
⑤ GND
⑦ GND
⑨ GND
⑬ FLAC (A)
C 1/3
CN303

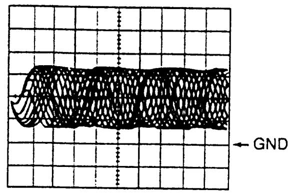
■ WAVEFORMS

Note : The encircled numbers denote measuring point in the schematic diagram.

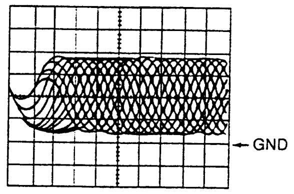
B DVDM ASSY

Measurement condition : No. 1 to 4 and 6 to 11 : MJK1, Title 1-chp 1
No. 5 : CD, ABEX-784 Track 1

① Foot of R104 (RF)
V: 100mV/div. H: 0.2μsec/div.

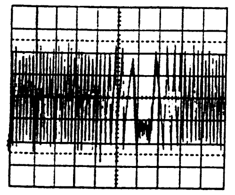


② Q106-emitter (RFO)
V: 500mV/div. H: 0.1μsec/div.

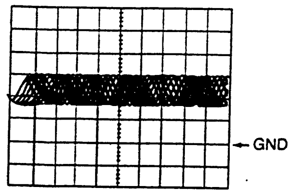


③

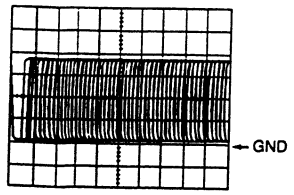
④ IC101-pin 35 (Tracking Error)
(Al-Inner Tracking Off)
V: 500mV/div. H: 2msec/div.



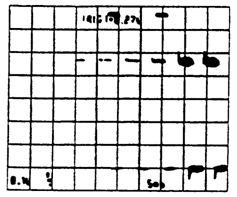
⑤ IC201 - pin 39 (EFM before slice)
V: 1V/div. H: 1μsec/div.



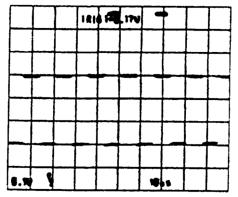
⑥ IC201 - pin 1 (EFM)
V: 1V/div. H: 0.2μsec/div.



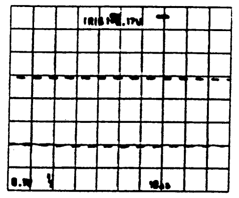
⑦ IC251 - pin 24 (FG)
V: 1V/div. H: 5msec/div.



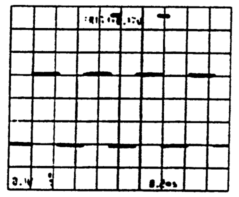
⑧ Foot of R261 (FPWM)
V: 1V/div. H: 5msec/div.



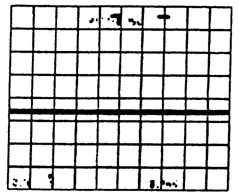
⑨ Foot of R262 (VPWM)
V: 1V/div. H: 5msec/div.



⑩ Foot of R263 (PPWM)
V: 1V/div. H: 5msec/div.



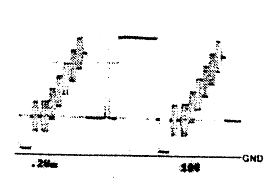
⑪ Foot of R264 (RPWM)
V: 1V/div. H: 5msec/div.



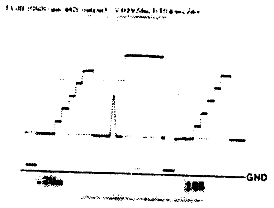
C AVJB ASSY

Measurement condition : No. 1 to 3 : MJK1, Title 1-chp 4
No. 4 to 6 : T2-19, Color-bar

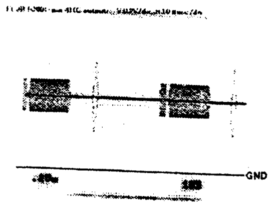
① IC601 - pin 45
(Composite Video output)
V: 0.2V/div. H: 10μsec/div.



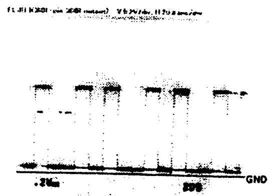
② IC601 - pin 44 (Y output)
V: 0.2V/div. H: 10μsec/div.



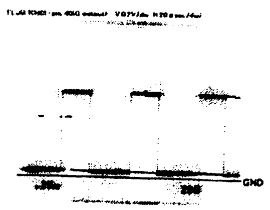
③ IC601 - pin 41 (C output)
V: 0.2V/div. H: 10μsec/div.



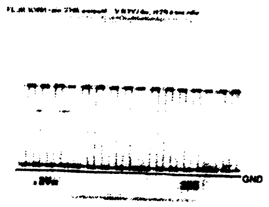
④ IC601 - pin 36 (R output)
V: 0.2V/div. H: 20μsec/div.



⑤ IC601 - pin 40 (G output)
V: 0.2V/div. H: 20μsec/div.



⑥ IC601 - pin 37 (B output)
V: 0.2V/div. H: 20μsec/div.



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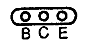
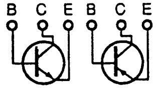
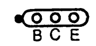
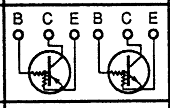
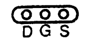
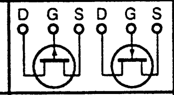
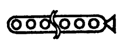
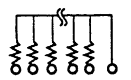
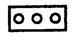
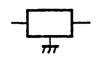
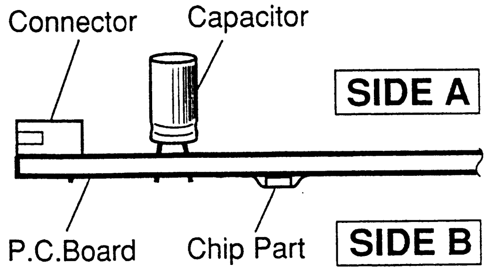
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

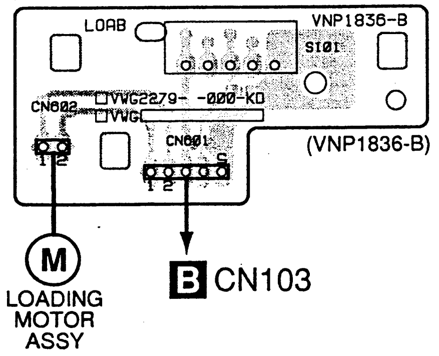
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destinations.
For further information for respective destinations, be sure to check with the schematic diagram.
4. View point of PCB diagrams.


Connector
Capacitor
SIDE A
P.C.Board
Chip Part
SIDE B

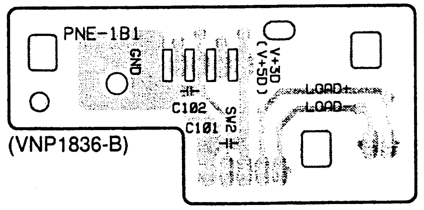
4.1 LOAB ASSY

A LOAB ASSY


LOAB
VNP1836-B
S101
VWG2279- -000-KD
VWG
CN602
1 2
CN601
1 2
5
(VNP1836-B)
M
LOADING MOTOR ASSY
B CN103

SIDE A

A LOAB ASSY

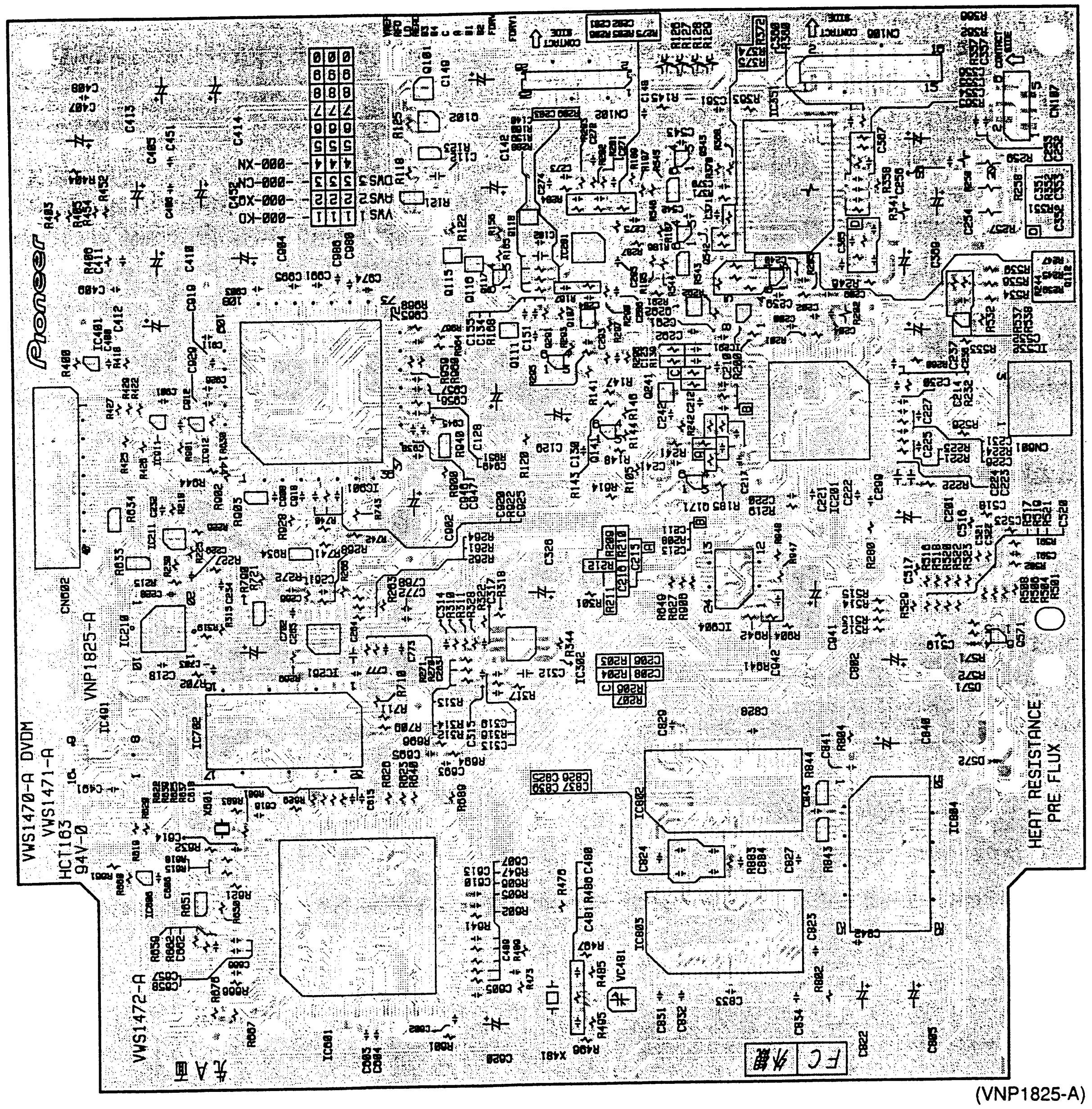

PNE-1B1
GND
V+3D
(V+5D)
C102
C101
SW2
LOAD+
LOAD-
(VNP1836-B)

SIDE B

4.2 DVDM ASSY

B DVDM ASSY

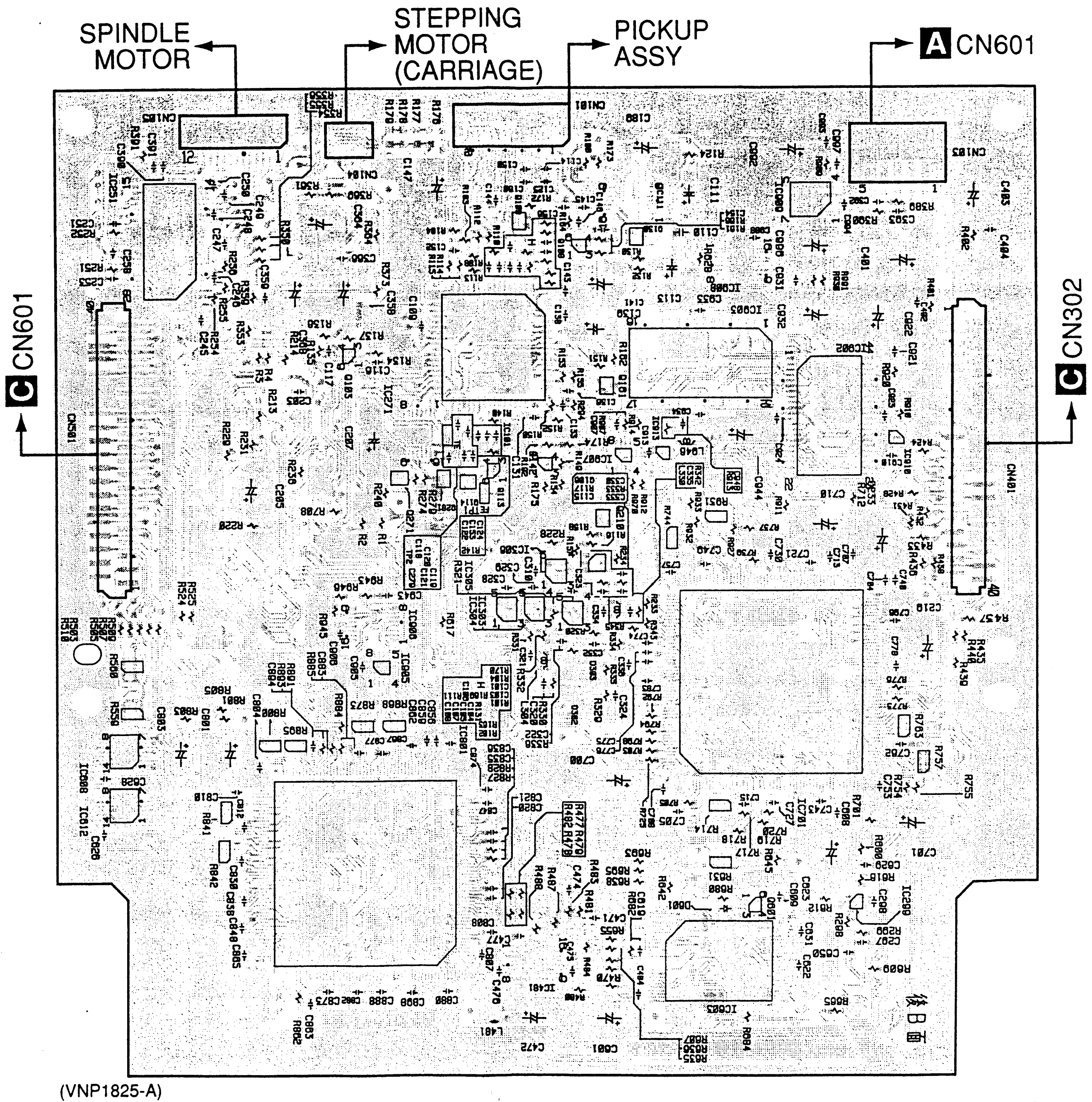
SIDE A



IC401 IC911 IC912 IC901 Q101 Q118 IC281 Q543 IC351 IC532
IC211 IC261 Q102 Q116 Q107 Q542 Q112 Q571
IC210 IC702 Q115 Q117 Q291 Q292 IC291 IC201
IC491 IC601 Q111 Q141 Q241 IC904 IC804
IC606 IC302 IC802
IC803

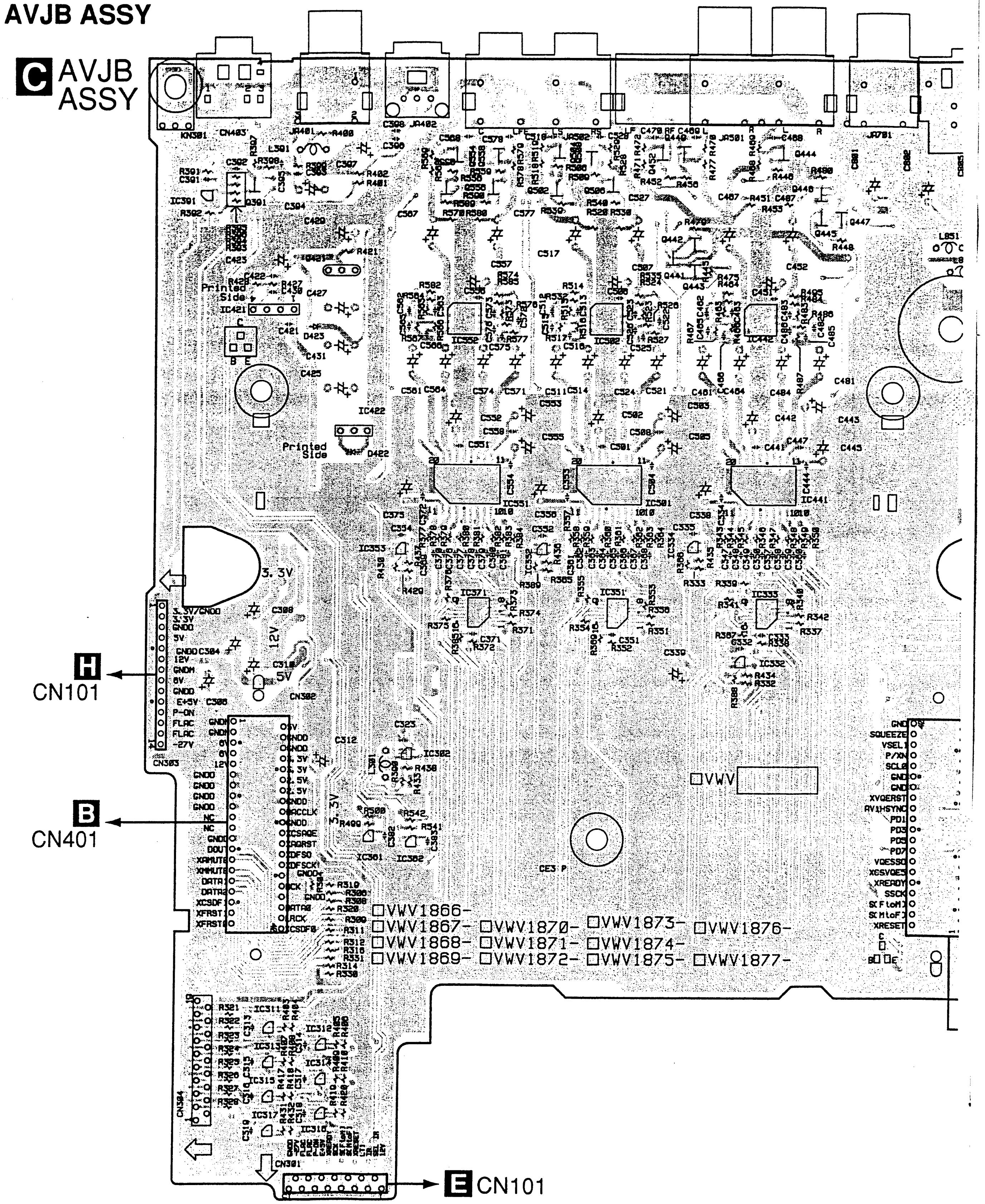
SIDE B

B DVDM ASSY

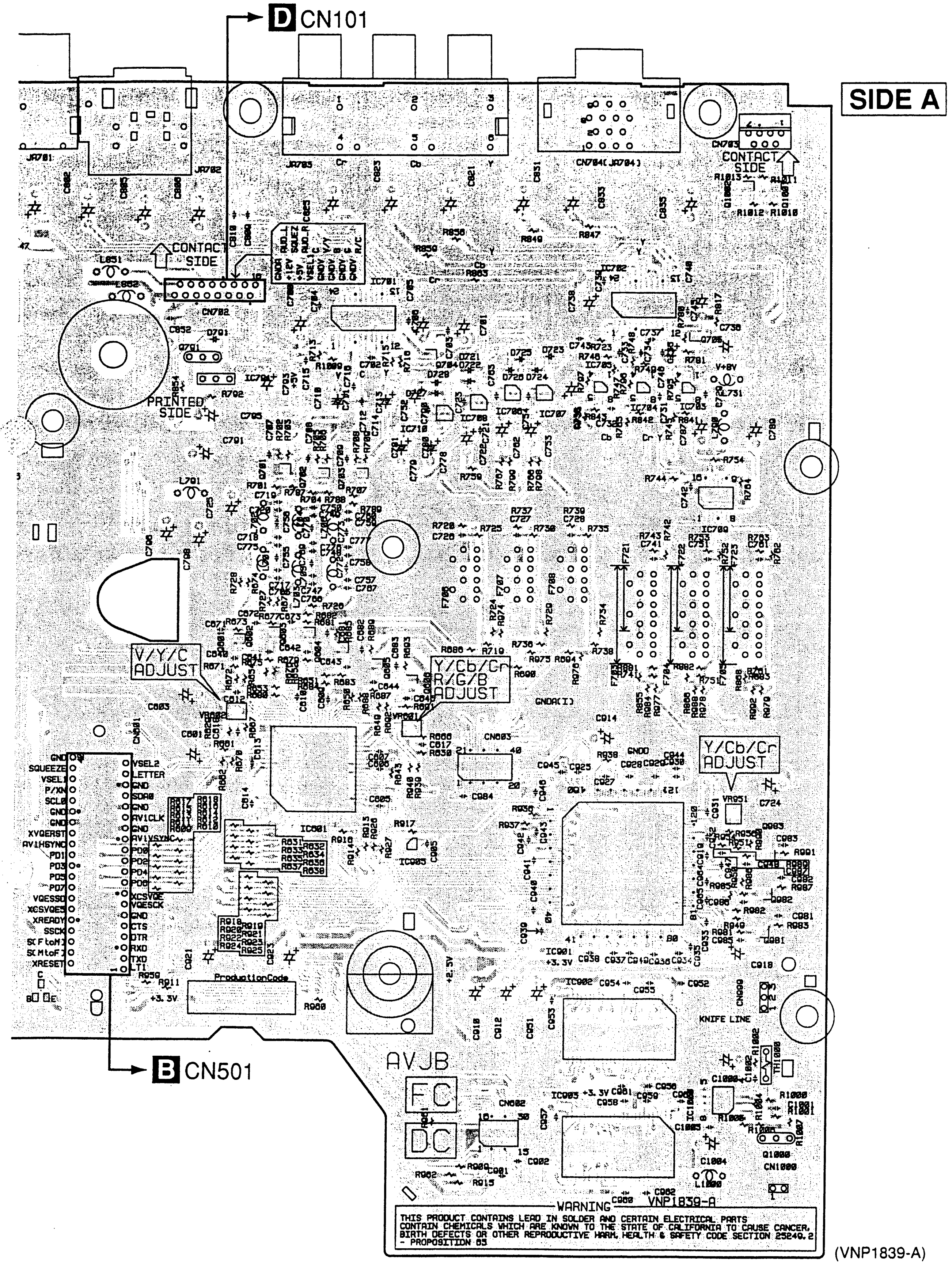

SPINDLE MOTOR
STEPPING MOTOR (CARRIAGE)
PICKUP ASSY
A CN601
C CN601
C CN302
(VNP1825-A)

IC251 Q103 IC271 Q109 Q108 Q130 IC903 IC909 IC910
IC608 Q271 Q281 IC101 Q142 Q161 IC913 IC701 IC902
IC612 IC905 Q113 IC907 Q601 IC299
IC801 IC306 Q210 IC603
Q106
IC304 IC303 IC305

4.3 AVJB ASSY


C AVJB ASSY
H CN101
B CN401
E CN101
3.3V
12V
5V
CN303
CN301
VWV1866-
VWV1867- VWV1870- VWV1873- VWV1876-
VWV1868- VWV1871- VWV1874-
VWV1869- VWV1872- VWV1875- VWV1877-

IC391 Q391 Q421 Q554 Q558 Q504 Q508 Q452 Q449 Q444 Q447
IC421 IC422 Q552 Q556 Q502 Q506 Q442 Q446
IC311 IC312 IC353 IC552 IC352 IC502 Q441 IC442 Q445
IC313 IC314 IC361 IC551 IC501 Q443 IC441
IC315 IC316 IC302 IC371 IC351 IC334 IC333
IC317 IC362 IC332

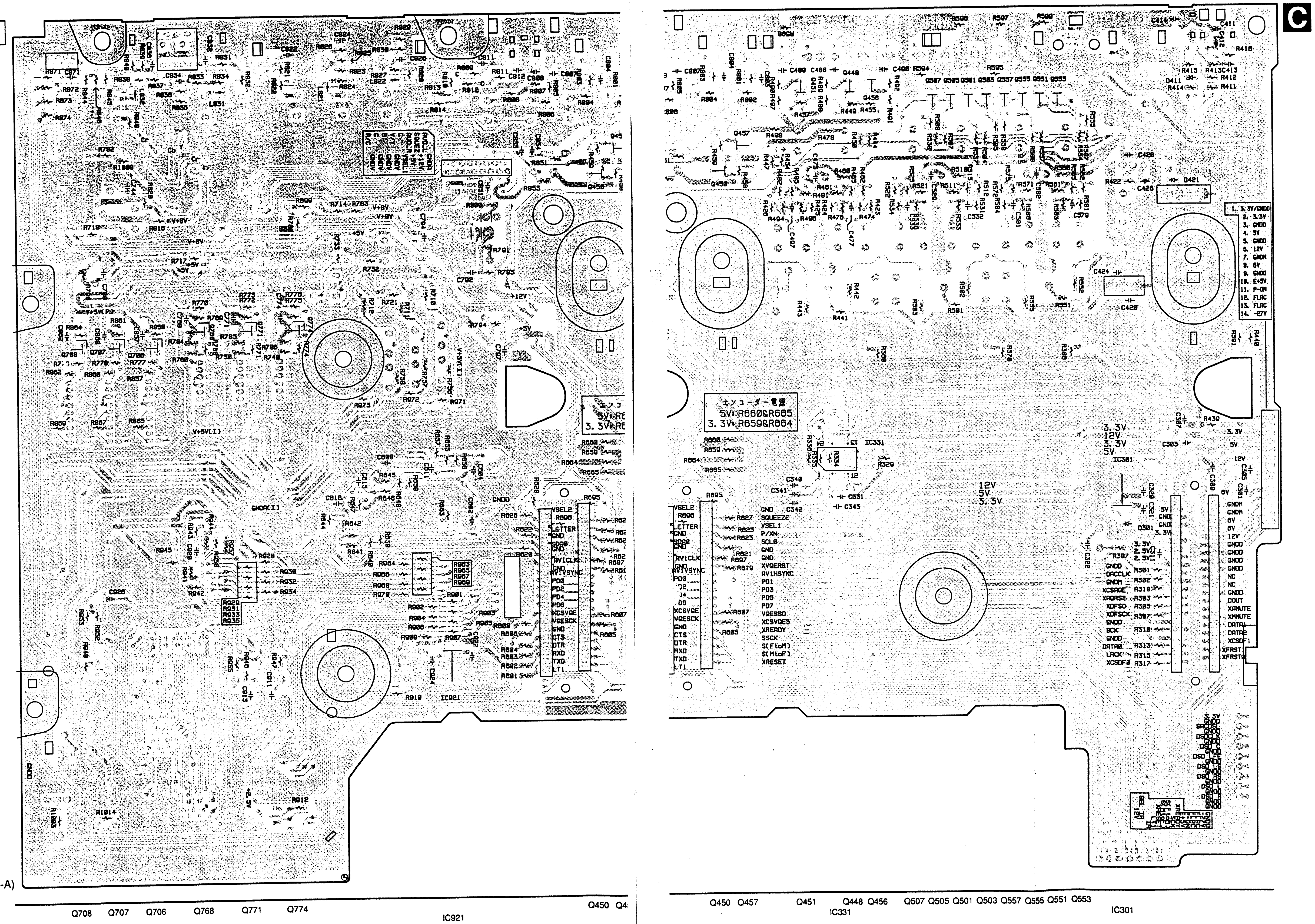

D CN101
SIDE A
CONTACT SIDE
PRINTED SIDE
V/Y/C ADJUST
Y/Cb/Cr R/G/B ADJUST
Y/Cb/Cr ADJUST
B CN501
AVJB
FC
DC
KNIFE LINE
WARNING
VNP1839-A
THIS PRODUCT CONTAINS LEAD IN SOLDER AND CERTAIN ELECTRICAL PARTS CONTAIN CHEMICALS WHICH ARE KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER, BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM. HEALTH & SAFETY CODE SECTION 25249.2 - PROPOSITION 65

(VNP1839-A)

VR602 VR601 VR951
Q791 IC701 Q704 IC702 Q1002 Q1001
IC791 Q701 Q702 Q703 Q705
Q601 Q602 Q603 Q604 Q605 IC710 IC708 IC706 IC707 IC705 IC704 IC703 Q983
IC601 Q601 IC901 IC709 Q982
IC905 IC902 Q981
IC903 IC1000 Q1000

SIDE B

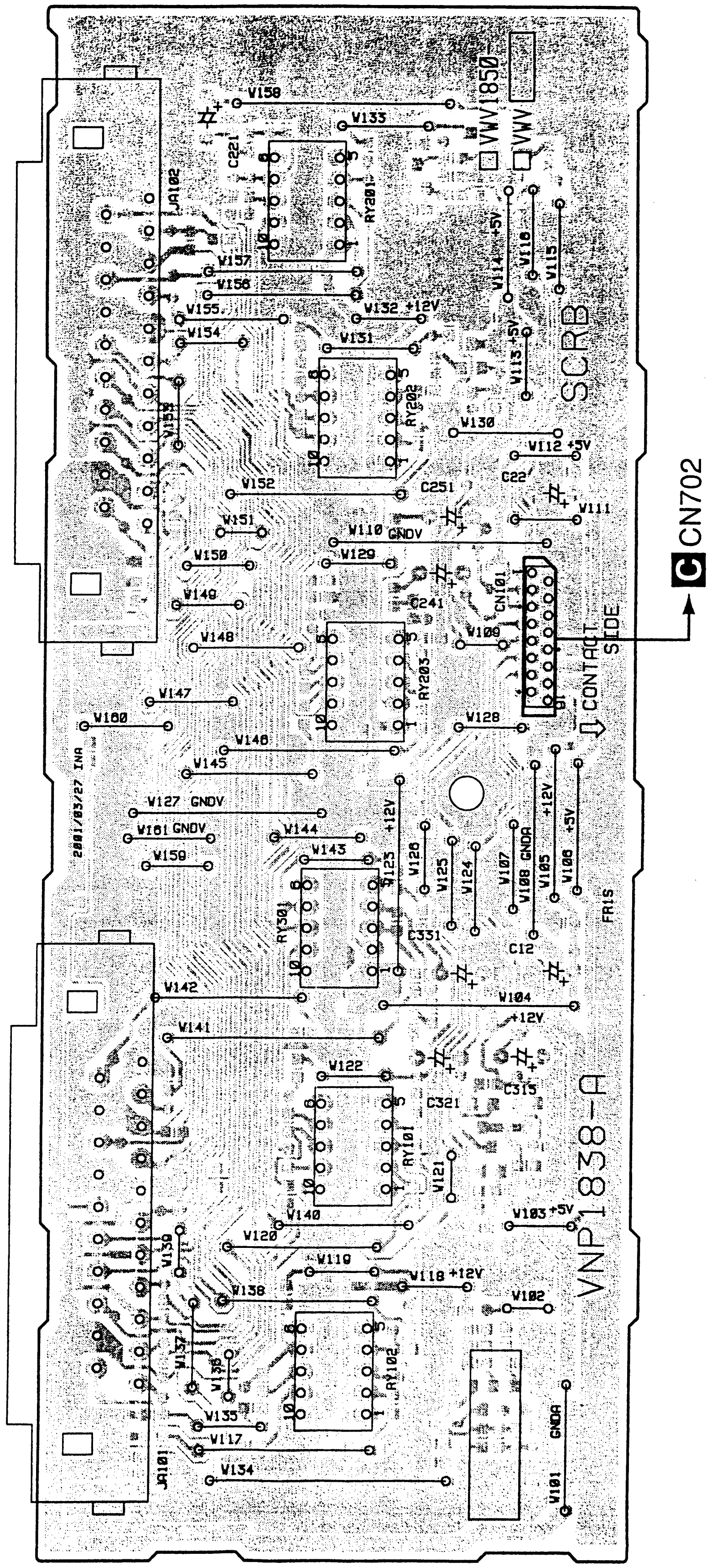
C AVJB ASSY


A
B
C
D
エンコーダー電源
5V R660&R685
3.3V R659&R664
1. 3.3V/GNDD
2. 3.3V
3. GNDD
4. 5V
5. GNDD
6. 12V
7. GNDM
8. 6V
9. GNDD
10. E+5V
11. P-ON
12. FLAC
13. FLAC
14. -27V
3.3V
12V
3.3V
5V
IC301
12V
5V
3.3V
IC331
IC921
(VNP1839-A)
Q708 Q707 Q706 Q768 Q771 Q774
Q450 Q457 Q451 Q448 Q456 Q507 Q505 Q501 Q503 Q557 Q555 Q551 Q553

4.4 SCRB ASSY

D SCRB ASSY

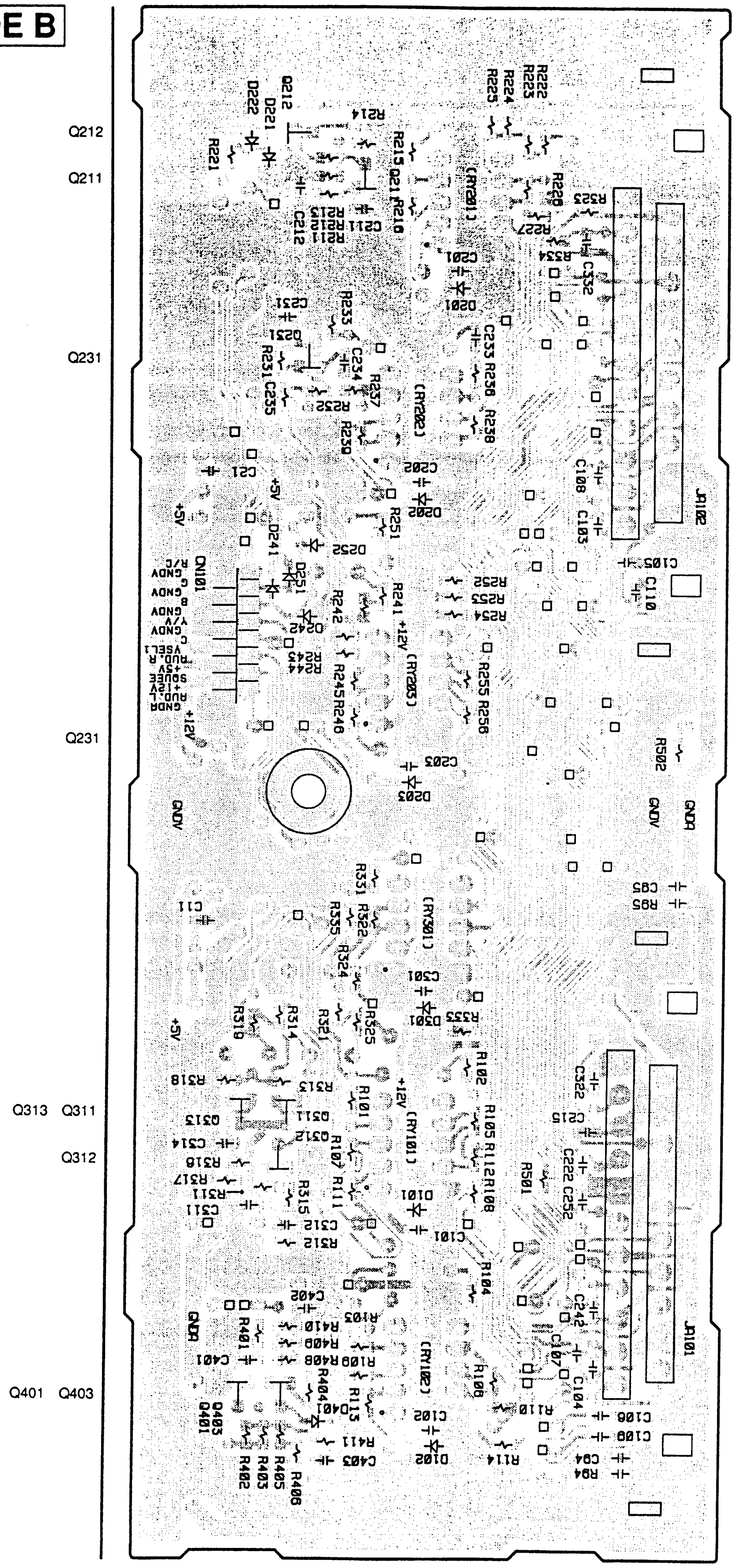
SIDE A


VWV1850
SCRB
VNP1838-A
CN702
CONTACT SIDE
JA102
JA101
RY201
RY202
RY203
RY301
RY101
RY102
CN101
V158
V133
V157
V156
V155
V154
V153
V152
V151
V150
V149
V148
V147
V146
V145
V144
V143
V142
V141
V140
V139
V138
V135
V134
V132 +12V
V131
V130
V129
V128
V127 GNDV
V126
V125
V124
V122
V121
V120
V119
V118 +12V
V117
V116
V115
V114 +5V
V113 +5V
V112 +5V
V111
V110 GNDV
V109
V108 GNDA
V107
V106 +5V
V105
V104
V103 +5V
V102
V101
V160
V161 GNDV
V159
C221
C251
C22
C241
C331
C12
C321
C315
GNDA
FRIS
2001/03/27 INA

(VNP1838-A)

D SCRB ASSY

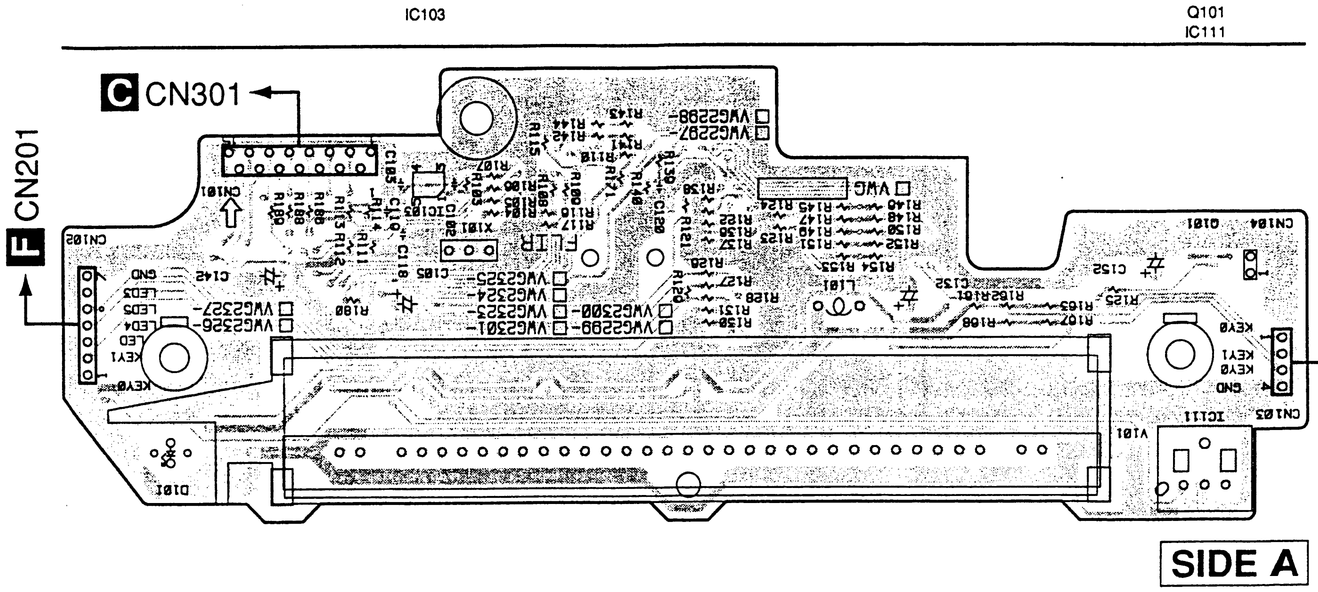
SIDE B


Q212
Q211
Q231
Q231
Q313
Q311
Q312
Q401
Q403
JA102
JA101
CN101
(RY201)
(RY202)
(RY203)
(RY301)
(RY101)
(RY102)
D222
D221
D201
D202
D203
D241
D251
D252
D301
D101
D102
R221
R222
R223
R224
R225
R214
R213
R212
R211
R210
C211
C212
C201
C202
C203
C231
C233
C234
C235
C21
C11
C301
C101
C102
C105
C108
C110
C314
C311
C312
C313
C322
C222
C252
C242
C401
C402
C403
C85
R85
C94
R94
R502
R501
GNDV
GNDA
+5V
+12V

(VNP1838-A)

4.5 FLIR ASSY

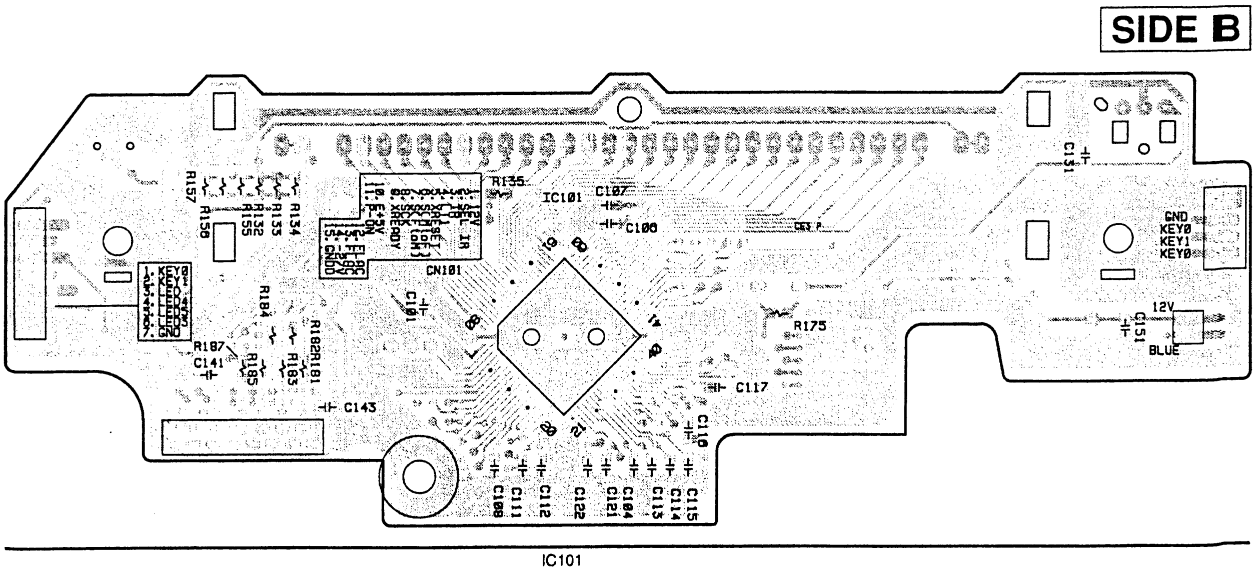
A


IC103
Q101
IC111
C CN301
F CN201
G CN251
CN101
CN102
CN103
CN104
GND
LED3
LED5
LED4
LED
KEY1
KEY0
D101
L101
V101
IC111
Q101
FLIR
SIDE A

B

E FLIR ASSY

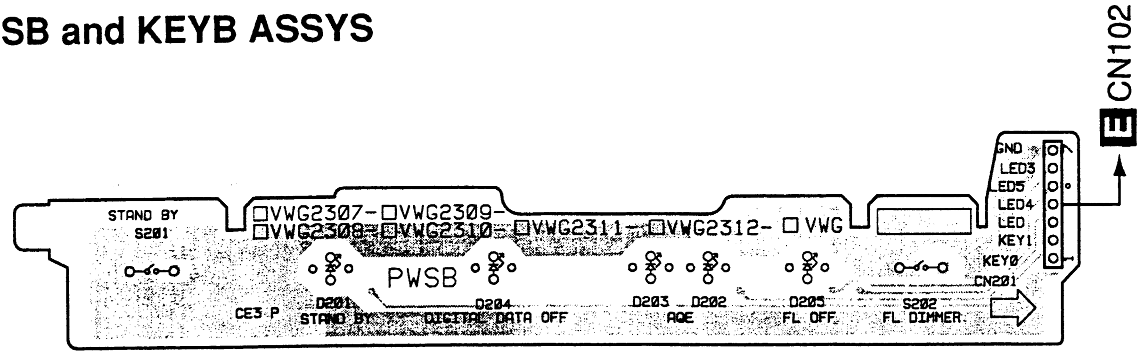
(VNP1839-A)


SIDE B
IC101
C107
C106
CN101
R135
R157
R156
R155
R132
R133
R134
C101
R175
C117
C143
C141
R187
R185
R183
R184
R182
R181
C110
C108
C111
C112
C122
C121
C104
C113
C114
C115
C131
C151
GND
KEY0
KEY1
KEY0
12V
BLUE
IC101

C

D

4.6 PWSB and KEYB ASSYS

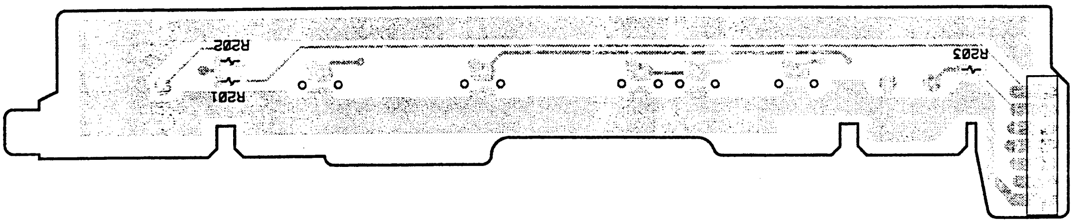

E CN102
GND
LED3
LED5
LED4
LED
KEY1
KEY0
CN201
STAND BY
S201
☐VWG2307- ☐VWG2309-
☐VWG2308- ☐VWG2310- ☐VWG2311- ☐VWG2312- ☐ VWG
PWSB
CE3 P
D201 STAND BY
D204 DIGITAL DATA OFF
D203 D202 AQE
D205 FL OFF
S202 FL DIMMER

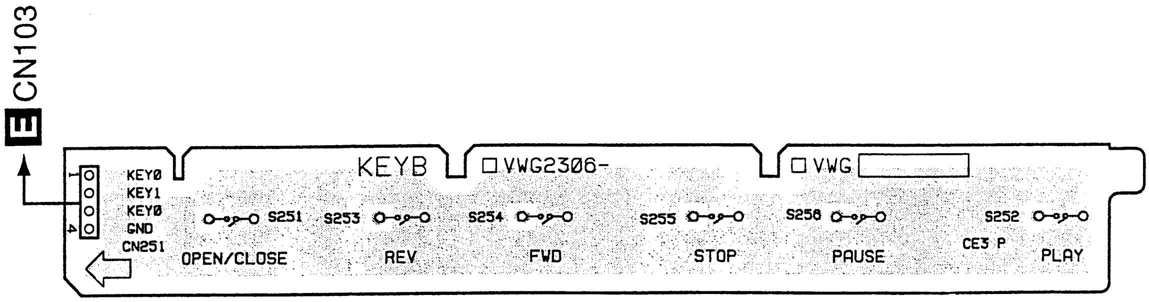
SIDE A

F PWSB ASSY

(VNP1839-A)

SIDE B


R202
R201
R203

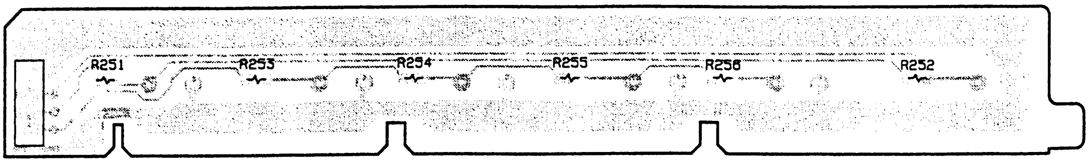

E CN103
1
4
KEY0
KEY1
KEY0
GND
CN251
KEYB
☐VWG2306-
☐ VWG
S251 OPEN/CLOSE
S253 REV
S254 FWD
S255 STOP
S256 PAUSE
CE3 P
S252 PLAY

SIDE A

G KEYB ASSY

(VNP1839-A)

SIDE B


R251
R253
R254
R255
R256
R252

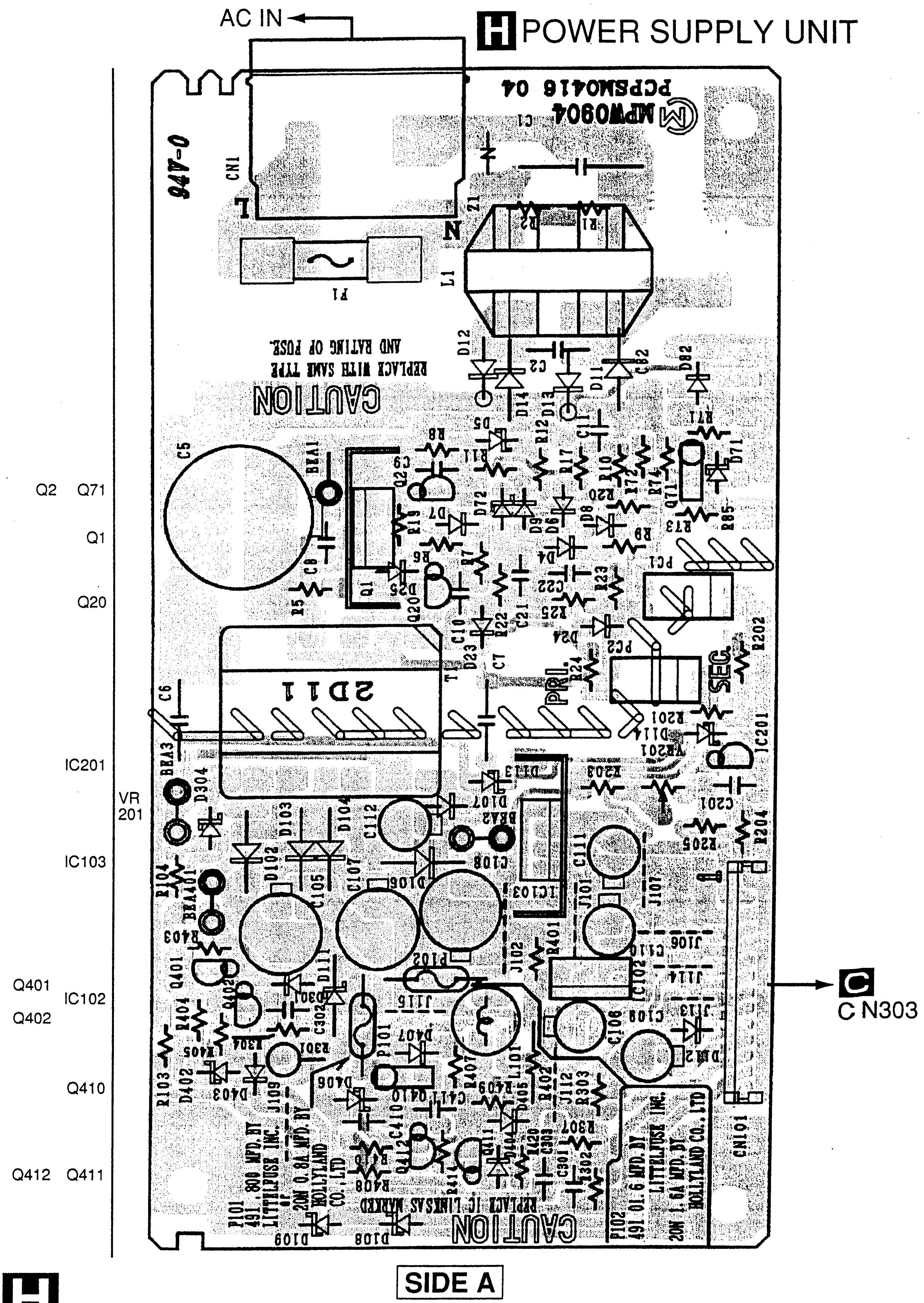
4.7 POWER SUPPLY UNIT

A

B

C

D


AC IN
H POWER SUPPLY UNIT
PCPSM0416 04
MPW0904
94V-0
CN1
F1
L1
CAUTION
REPLACE WITH SAME TYPE AND RATING OF FUSE.
C5
2D11
T1
PRI.
SEC.
Q2
Q71
Q1
Q20
IC201
VR 201
IC103
Q401
IC102
Q402
Q410
Q412
Q411
CN101
C CN303
CAUTION
REPLACE IC LINKS MARKED
P101 491 .800 MFD. BY LITTELFUSE INC. OR 20M 0.8A MFD. BY HOLLYLAND CO.,LTD
P102 491 01.6 MFD. BY LITTELFUSE INC. 20M 1.6A MFD. BY HOLLYLAND CO.,LTD
SIDE A

5. PCB PARTS LIST

NOTES:
- *Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *When ordering resistors, first convert resistance values into code form as shown in the following examples.*

Ex.1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by J=5%, and K=10%).

560 Ω → 56×10^{1} → 561 .... RD1/4PU $\boxed{5}\boxed{6}\boxed{1}$ J
47k Ω → 47×10^{3} → 473 .... RD1/4PU $\boxed{4}\boxed{7}\boxed{3}$ J
0.5 Ω → R50 .... RN2H $\boxed{R}\boxed{5}\boxed{0}$ K
1 Ω → 1R0 .... RS1P $\boxed{1}\boxed{R}\boxed{0}$ K

Ex.2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k Ω → 562×10^{1} → 5621 .... RN1/4PC $\boxed{5}\boxed{6}\boxed{2}\boxed{1}$ F

LIST OF ASSEMBLIES

Mark	No.	Description	Part No.
NSP		LOADING MECHANISM ASSY	VWT1188
NSP		└LOAB ASSY	VWG2279
		DVDM ASSY	VWS1470
NSP		FLJB ASSY	VWM2088
		├FLIR ASSY	VWG2297
NSP		├KEYB ASSY	VWG2306
NSP		├PWSB ASSY	VWG2307
		└AVJB ASSY	VWV1866
		SCRB ASSY	VWV1850
⚠		POWER SUPPLY UNIT	VWR1340

A LOAB ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S101	REAF SWITCH	VSK1011

OTHERS

Mark	No.	Description	Part No.
	CN602	CONNECTOR	S2B-PH-K
	CN601	CONNECTOR	S5B-PH-K
		PRINTED CIRCUIT BORD	VNP1836

B DVDM ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC261, IC281, IC302		BA4510F
	IC251		BA6664FM
	IC481		BU2288FV
	IC702		GM71VS65803CLT-5
	IC802		HY57V161610DTC-8
	IC902		IS61LV6416-12T
	IC903		IS63LV1024-12T
	IC101		LA9701M
	IC201		LC78652W
	IC904		LC89051V
	IC351		M56788AFP
	IC801		M65774BFP
	IC909		MM1561JF
	IC601		PD6345A
	IC701		PE5220A
	IC111, IC271		TC74HC4053AFT
	IC612		TC74VHC125FT
	IC491		TC74VHC153FT
	IC906, IC908		TC74VHC157FT
	IC608		TC74VHCT125AFT
	IC401, IC911–IC913		TC7SH04FU
	IC532		TC7SH32FU
	IC303, IC304		TC7SZU04F
	IC907		TC7WH125FU
	IC905		TC7WH157FU
	IC603		VYW1835
	IC901		XCA56367PV150
	Q109		2SA1576A
	Q114, Q130		2SC4081
	Q107, Q111, Q115, Q241, Q271		DTC114EUA
	Q281		DTC114EUA
	Q101, Q102, Q106		HN1A01F
	Q103, Q141, Q142, Q542, Q543		HN1B04FU
	Q112, Q113		HN1C01FU
	Q108		HN1K03FU
	Q571		RN1911
	Q117, Q171, Q601		RN4982
	D302, D303		KV1470
	D601		RB501V-40

COILS AND FILTERS

Mark	No.	Description	Part No.
	L946		LCYA1R0J2520
	L304		LCYA1R5J2520
	L418, L893	CHIP BEADS	VTL1082
	L516–L523	CHIP BEADS	VTL1083
	L481	CHIP BEADS	VTL1084

CAPACITORS

Mark	No.	Description	Part No.
	C480, C481, C516–C523, C662		CCSRCH100D50
	C152		CCSRCH101J50
	C104–C108, C314		CCSRCH150J50
	C151		CCSRCH270J50
	C324, C391, C392		CCSRCH331J50
	C146		CCSRCH390J50
	C122, C123		CCSRCH391J50
	C116, C134, C283, C284, C297		CCSRCH470J50
	C145, C241		CCSRCH560J50
	C281, C282		CCSRCH5R0C50
	C286		CCSRCH680J50
	C117, C360		CCSRCH681J50
	C124		CCSRCH820J50
	C128, C142, C189, C201, C205		CEV101M16
	C237, C254, C358, C364		CEV101M16

Mark	No. Description	Part No.
	C368, C369, C401, C407, C413	CEV101M16
	C944	CEV101M16
	C113, C139	CEV220M16
	C147, C405, C410, C452, C620	CEV221M4
	C623, C701, C702, C710, C803	CEV221M4
	C822, C902, C992, C996	CEV221M4
	C111, C207	CEV470M6R3
	C140, C223, C224, C264, C312	CKSQYB105K10
	C209, C211, C216, C275, C313	CKSRYB102K50
	C351	CKSRYB102K50
	C133, C136, C203, C220, C225	CKSRYB103K50
	C239, C261, C320–C322, C330	CKSRYB103K50
	C591, C619, C705, C707, C943	CKSRYB103K50
	C947	CKSRYB103K50
	C101, C103, C118–C120	CKSRYB104K16
	C212, C213, C227, C231	CKSRYB104K16
	C248–C251, C255, C263, C315	CKSRYB104K16
	C317	CKSRYB104K16
	C208, C210	CKSRYB222K50
	C271–C274	CKSRYB223K50
	C266	CKSRYB224K10
	C206, C214, C242, C357	CKSRYB472K50
	C946	CKSRYB473K50
	C102, C121, C138, C143, C154	CKSRYF104Z25
	C253, C256, C258, C279, C285	CKSRYF104Z25
	C332, C353, C359, C365, C366	CKSRYF104Z25
	C402, C475–C477, C609, C768	CKSRYF104Z25
	C772, C773	CKSRYF104Z25
	C109, C115, C130, C131, C144	CKSRYF105Z10
	C148, C200, C202, C204, C215	CKSRYF105Z10
	C217, C221, C222, C226, C230	CKSRYF105Z10
	C236, C265, C298, C299, C319	CKSRYF105Z10
	C328, C329, C400, C404, C406	CKSRYF105Z10
	C408, C411, C451, C491, C532	CKSRYF105Z10
	C542, C543, C602–C605	CKSRYF105Z10
	C607, C608, C610, C613–C616	CKSRYF105Z10
	C618, C622, C626, C628, C631	CKSRYF105Z10
	C657, C658, C703, C704, C708	CKSRYF105Z10
	C715, C721, C727, C730, C740	CKSRYF105Z10
	C743, C749, C753, C757, C762	CKSRYF105Z10
	C774–C778, C783, C796, C804	CKSRYF105Z10
	C807, C808, C810, C812	CKSRYF105Z10
	C820, C821, C823–C830	CKSRYF105Z10
	C835, C836, C838, C847, C848	CKSRYF105Z10
	C856, C859, C862, C863, C865	CKSRYF105Z10
	C867, C873, C874, C877, C880	CKSRYF105Z10
	C882, C883, C888, C894, C898	CKSRYF105Z10
	C901, C903, C905–C908	CKSRYF105Z10
	C911–C913, C918–C920	CKSRYF105Z10
	C923–C926, C929, C933, C934	CKSRYF105Z10
	C938, C942, C945, C948, C949	CKSRYF105Z10
	C956, C957, C965, C974, C980	CKSRYF105Z10
	C986, C988, C991, C993–C995	CKSRYF105Z10
	C403 (100µF/6.3V)	VCH1194
	C472, C700, C801 (150µF/4V)	VCH1195
	C367 (33µF/16V)	VCH1197

RESISTORS

Mark	No. Description	Part No.
	R800, R895	*RAB4C0R0J*
	R543, R545, R631, R714, R744	RAB4C103J
	R841–R844, R903, R931, R934	RAB4C103J
	R940	RAB4C103J
	R121, R757, R763, R790, R868	RAB4C220J
	R873	RAB4C220J
	R123	RAB4C470J
	R202, R341	RS1/10S101J
	R126–R129, R176–R179	RS1/10S220J
	R287	RS1/16S1002F
	R364, R369, R373, R375	RS1/16S1003F
	R289, R358, R361	RS1/16S1503F
	R288	RS1/16S2201F
	R357, R362, R363, R368, R372	RS1/16S6802F
	R374	RS1/16S6802F
	R257 (1.0Ω, 1/4W)	VCN1127
	R258, R259 (2.2Ω, 1/4W)	VCN1128
	Other Resistors	RS1/16S□□□J

OTHERS

Mark	No. Description	Part No.
	CN104 4P CONNECTOR	DKN1223
	CN103 CONNECTOR	S5B-PH-SM3
	FLEXIBLE CABLE	VDA1681
	CN101 FFC CONNECTOR	VKN1787
	CN401, CN501 B TO B CONNECTOR 40P	VKN1788
	CN105 12P CONNECTOR	VKN1795
	X481 (27.000MHz)	VSS1159
	X601 (16.5MHz)	VSS1160

C AVJB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	IC601	ADV7190KST
⚠	IC301	BA25BC0FP
	IC441, IC501, IC551	CS4392-KS
	IC701	LA7138M
	IC708	MM1506XN
	IC710	MM1508XN
	IC706, IC707	MM1509XN
	IC442, IC502, IC552	NJM4580M-TFB
⚠	IC422	NJM78M05FA
	IC331	PD0274A-TFB
⚠	IC421	PQ15RW11
	IC361, IC362	TC7SH32FU
	IC332, IC334, IC352, IC353	TC7SHU04FU
	Q442, Q446, Q502, Q506, Q552	2SA1037K
	Q556, Q601–Q606, Q701–Q704	2SA1037K
	Q768, Q771, Q774	2SA1037K
⚠	Q421	2SC1740S
	Q391	2SC2412K
	Q444, Q448–Q452, Q456, Q457	2SD2114K
	Q504, Q508, Q554, Q558	2SD2114K
	Q441, Q443, Q445, Q447, Q501	DTC114YK
	Q503, Q505, Q507, Q551, Q553	DTC114YK
	Q555, Q557	DTC114YK
	D411, D423, D721–D728	1SS355

COILS AND FILTERS

Mark	No. Description	Part No.
	L702, L704, L706	LAU100J
	L701, L703, L705	LAU4R7J
	F 706–F 708 6MHz LPF(VIDEO)	VTF1174
	L368, L370, L386 CHIP BEADS	VTL1084

CAPACITORS

Mark	No. Description	Part No.
	C477, C497, C532, C533, C579	CCSRCH101J50
	C581	CCSRCH101J50
	C462, C465, C482, C485, C512	CCSRCH102J50
	C515, C522, C525, C562, C565	CCSRCH102J50
	C572, C575	CCSRCH102J50
	C719, C749, C759	CCSRCH150J50
	C463, C466, C483, C486, C513	CCSRCH221J50
	C516, C523, C526, C563, C566	CCSRCH221J50
	C573, C576	CCSRCH221J50
	C720, C750, C760	CCSRCH270J50
	C718, C748, C758	CCSRCH330J50
	C412, C715, C716	CCSRCH470J50
	C717, C747, C757	CCSRCH7R0D50
	C312, C339	CEAL101M6R3
	C710, C714, C722, C753, C762	CEAT100M50
	C431, C511, C514, C521, C524	CEAT101M16
	C561, C564, C571, C574	CEAT101M16
	C700, C701, C791, C793	CEAT101M16
	C397, C601, C603, C725, C752	CEAT101M6R3
	C796, C798	CEAT101M6R3
	C394, C503, C505, C553, C555	CEAT1R0M50
	C801, C802, C805, C806	CEAT471M6R3
	C507, C557	CEBA101M25
	C443, C445	CEHAT1R0M50
	C423, C427, C429	CEHAZA101M16
	C452	CEHAZA221M16
	C338, C356, C375, C442, C502	CEHAZA221M6R3
	C552	CEHAZA221M6R3
	C467, C487, C517, C527, C567	CEHAZA470M35
	C577	CEHAZA470M35
	C425	CEHAZA471M6R3
	C705	CEHAZL331M16
	C712, C721, C780, C781	CKSRYB104K16
	C809, C810	CKSRYB104K16
	C321, C331, C332, C335, C352	CKSRYF104Z25
	C354, C382, C383, C392, C396	CKSRYF104Z25
	C398, C411, C422, C424, C426	CKSRYF104Z25
	C428, C444, C447, C475, C504	CKSRYF104Z25
	C508, C529, C554, C558, C582	CKSRYF104Z25
	C602, C604–C614, C671–C673	CKSRYF104Z25
	C681–C683, C702–C704	CKSRYF104Z25
	C706–C709, C723, C754, C763	CKSRYF104Z25
	C768, C771, C774, C790, C792	CKSRYF104Z25
	C794, C797, C851, C852, C871	CKSRYF104Z25
	C320, C334, C353, C372, C441	CKSRYF105Z10
	C501, C551	CKSRYF105Z10
	C420, C421, C451, C506, C556	CKSRYF224Z16
	C461, C464, C481, C484 (100µF)	VCH1192

RESISTORS

Mark	No. Description	Part No.
	R461, R475, R481, R495, R511	RN1/16SE1202D
	R521, R532, R535, R561, R571	RN1/16SE1202D
	R582, R585	RN1/16SE1202D
	R464, R467, R484, R487, R514	RN1/16SE1502D
	R517, R524, R527, R564, R567	RN1/16SE1502D
	R574, R577	RN1/16SE1502D
	R462, R465, R482, R485, R512	RN1/16SE2201D
	R515, R522, R525, R562, R565	RN1/16SE2201D
	R572, R575	RN1/16SE2201D
	R474, R476, R494, R496, R531	RN1/16SE3301D
	R533, R534, R536, R581	RN1/16SE3301D
	R583, R584, R586	RN1/16SE3301D
	R666, R667, R726–R728	RS1/16S1201F
	R655	RS1/16S1502F
	R428	RS1/16S1601D
	R719, R736, R738	RS1/16S3000D
	R672, R676, R680, R684, R688	RS1/16S3000F
	R692	RS1/16S3000F
	R427	RS1/16S4701D
	R656	RS1/16S4702F
	R801, R803, R805, R807, R809	RS1/16S62R0D
	R811	RS1/16S62R0D
	R674, R678, R682	RS1/16S6800F
	R657	RS1/16S6801F
	Other Resistors	RS1/16S□□□J

OTHERS

Mark	No. Description	Part No.
	CN303 CONNECTOR 14P	14P-FJ
	CN301 15P CONNECTOR	15P-1.25FJ
	CN403 JACK	AKN1006
	JA702 SOCKET	AKP7117
	JA402 OPT. LINK OUT 12MB/S	GP1FA502TZ
	JA701 JACK	VKB1124
	JA502 JACK	VKB1126
	JA501 JACK	VKB1130
	JA401 JACK	VKB1159
	CN702 16P CONNECTOR	VKN1247
	CN703 7P CONNECTOR	VKN1267
	CN302, CN601 B TO B CONNECTOR 40P	VKN1789

D SCRB ASSY

SEMICONDUCTORS

Mark	No. Description	Part No.
	Q212, Q403	2SA1037K
	Q211, Q311–Q313, Q401	2SC2412K
	D301, D401	1SS355

SWITCHES AND RELAYS

Mark	No. Description	Part No.
	RY101, RY102, RY201	VSR1016
	RY203, RY301	VSR1016

CAPACITORS

Mark	No. Description	Part No.
	C103–C110	CCSRCH391J50
	C221, C241, C251, C315	CEAT101M10
	C321, C331	CEAT471M10
	C101, C102, C11, C201, C203	CKSRYF104Z25
	C21, C212, C215, C301	CKSRYF104Z25
	C311, C312, C314, C402, C403	CKSRYF104Z25
	C94	CKSRYF104Z25

RESISTORS

Mark	No. Description	Part No.
	R215, R223, R242, R252, R321	RS1/16S68R0F
	R331	RS1/16S68R0F
	Other Resistors	RS1/16S□□□J

OTHERS

Mark	No. Description	Part No.
	JA101, JA102 CONNECTOR	VKB1157
	CN101 16P CONNECTOR	VKN1247
	PRINTED CIRCUIT BOARD	VNP1838

E FLIR ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	IC101		PE5251A
	IC103		PST3242
	IC111		TSOP1840XG1
	D101		SLR-56VC(NPQ)

COILS AND FILTERS

Mark	No.	Description	Part No.
	L101		LAU680J

CAPACITORS

Mark	No.	Description	Part No.
	C111, C112, C116, C117		CCSRCH102J50
	C121, C122		CCSRCH102J50
	C105, C132		CEAL101M6R3
	C101–C104, C106, C108, C131		CKSRYF104Z25
	C107		CKSRYF104Z50

RESISTORS

Mark	No.	Description	Part No.
		All Resistors	RS1/16S□□□J

OTHERS

Mark	No.	Description	Part No.
	CN103	CONNECTOR 4P	04R-FJ
	CN102	CONNECTOR 7P	07R-FJ
	CN101	15P CONNECTOR	15R-1.25FJ
	V101	FL TUBE	VAW1065
		FL HOLDER	VNK4748
	X101	(5MHz)	VSS1142

F PWSB ASSY

SEMICONDUCTORS

Mark	No.	Description	Part No.
	D202		SLR-56DC(NPQ)

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S201, S202		ASG7013

RESISTORS

Mark	No.	Description	Part No.
		All Resistors	RS1/16S□□□J

OTHERS

Mark	No.	Description	Part No.
	CN201	CONNECTOR 7P	07P-FJ

G KEYB ASSY

SWITCHES AND RELAYS

Mark	No.	Description	Part No.
	S251–S256		ASG7013

RESISTORS

Mark	No.	Description	Part No.
		All Resistors	RS1/16S□□□J

OTHERS

Mark	No.	Description	Part No.
	CN251	CONNECTOR 4P	04P-FJ

H POWER SUPPLY UNIT

OTHERS

Mark	No.	Description	Part No.
⚠	P101	PROTECTOR (800mA)	AEK7063
⚠	P102	PROTECTOR (1.6A)	AEK7066
⚠	FU1	FUSE (2.5A)	REK1102

6. ADJUSTMENT

6.1 ADJUSTMENT ITEMS AND LOCATION

■ Adjustment Items

[Mechanism Part]

❶ Tangential and Radial Height Coarse Adjustment

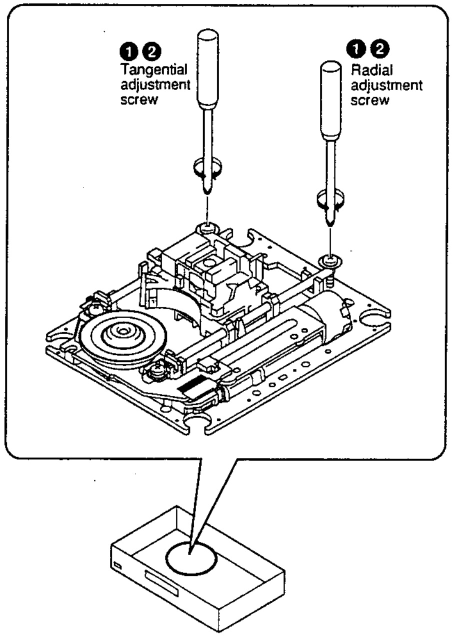
❷ DVD Jitter Adjustment

❸ Initialize the Focus Sweep Setting

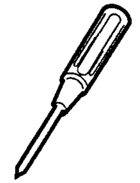
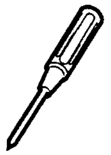
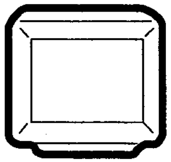
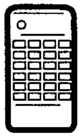
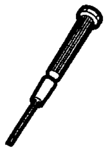
[Electrical Part]
Electrical adjustments are not required.

■ Adjustment Points (Mechanism Part)

Cautions: After adjustment, adjustment screw locks with the Screw tight.



6.2 JIGS AND MEASURING INSTRUMENTS

 ⊕ Screwdriver (large)	 ⊕ Screwdriver (medium)
 TV monitor	 Test mode remote control unit (GGF1067)
 ⊕ Precise screwdriver	 DVD test disc (GGV1025)
Screw tight (GYL1001)	

6.3 NECESSARY ADJUSTMENT POINTS

■ Exchange Parts of Mechanism Assy

When		Adjustment Points
Exchange the Pickup	Mechanical point	❶, ❷, ❸ * After adjustment, screw locks with the Screw tight.
	Electric point	———
Exchange the Traverse Mechanism	Mechanical point	❸
	Electric point	———
Exchange the Spindle Motor	Mechanical point	❷, ❸ * After adjustment, screw locks with the Screw tight.
	Electric point	———

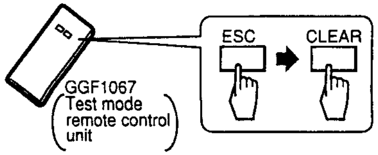
■ Exchange PCB Assy

When		Adjustment Points
Exchange PC Board SSIB, LOAB, DVDM ASSY	Mechanical point	———
	Electric point	———

*

Purpose: To set the sweep which was correct with the individual Traverse mechanism.

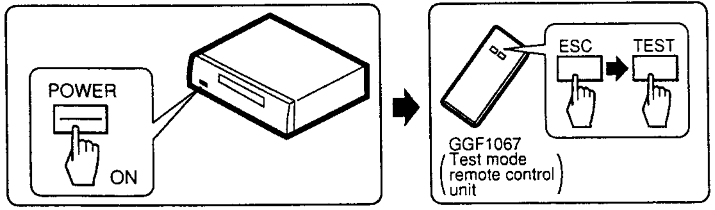
Be sure to perform the following step finally when replaced Pickup, Traverse Mechanism and Spindle Motor.


ESC
CLEAR
GGF1067
(Test mode remote control unit)

(It is necessary when performed adjustment procedure ❷.)

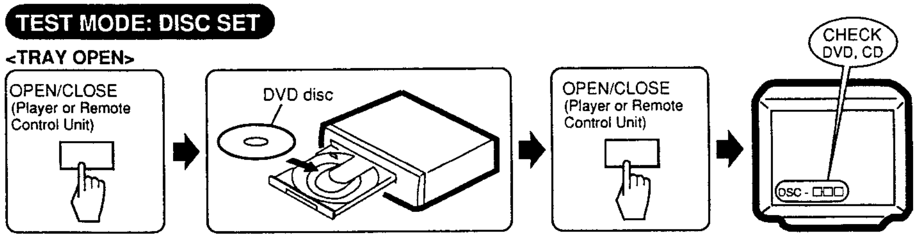
6.4 TEST MODE

TEST MODE: ON


POWER
ON
ESC
TEST
GGF1067
(Test mode remote control unit)

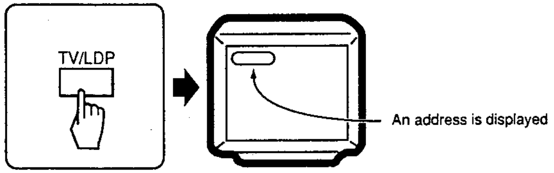
TEST MODE: DISC SET

<TRAY OPEN>


OPEN/CLOSE
(Player or Remote Control Unit)
DVD disc
OPEN/CLOSE
(Player or Remote Control Unit)
CHECK DVD, CD
OSC - □□□

TEST MODE: PLAY

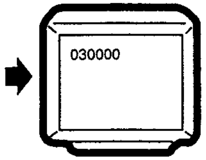
<PLAY>


TV/LDP
An address is displayed

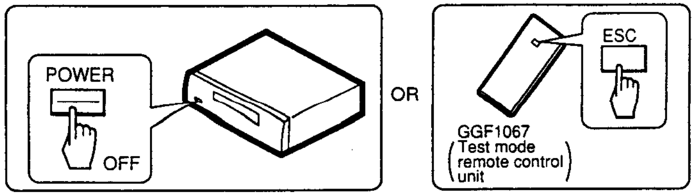
< When playback with the target address of disc (DVD)>

For example, when playback with # 30000

During PLAY [+10] ➡ [3] ➡ [0] ➡ [0] ➡ [0] ➡ [0] ➡ [CHP/TIM] Press keys in order



TEST MODE: OFF

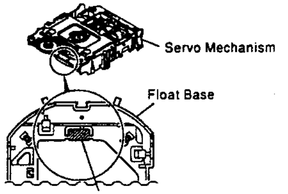

POWER
OFF
OR
ESC
GGF1067
(Test mode remote control unit)

6.5 MECHANISM ADJUSTMENT

❶ Tangential and Radial Height Coarse Adjustment

START

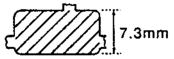
- Remove the servo mechanism.
- Remove a Spacer for height adjustment attached to the back side (shaded area) of the Servo Mechanism (Float Base) with nippers.



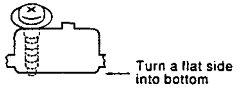
Spacer for Height adjustment

Note:
Turn the Short switch to Short side when removing the Pickup Flexible Cable.
(Refer to "7.1.7 DISASSEBLY".)

Cautions:
Because there is not a Spacer for height adjustment in adjustment after the second time, will keep it at need.
(This parts is Traverse mechanism exclusive use of a model for 2001 years)



Put a spacer between a Tangential (or Radial) adjustment screw and Mechanism Base and turn each screw to adjust the height. (Refer to "6.1 ADJUSTMENT ITEMS AND LOCATION".)



---

❷ DVD Jitter Adjustment

- Playback method of inner and outer address for the purpose is refererd to "6.3 TEST MODE".
- Jitter indication of the monitor is refererd to "7.1.3 TEST MODE SCREEN DISPLAY".

Use disc: GGV1025

START

- Test mode
- Play the DVD test disc at outer track (around #200000)

Mechanism Assy

Adjust the Tangential Adjustment Screw so that jitter becomes minimum.

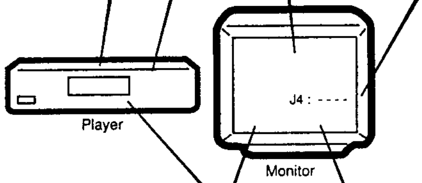
J4 : Min

- Play the DVD test disc at inner track (around #30000)

Mechanism Assy

Adjust the Radial Adjustment Screw so that jitter becomes minimum.

J4 : Min

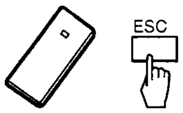


- Play the DVD test disc at outer track (around #200000)

Mechanism Assy

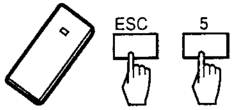
Readjust the Tangential Adjustment Screw so that jitter becomes minimum.

J4 : Min



Test mode end

Disc playback normally.
- The measurement of block error rate



CHECK

Confirm the error rate that is displayed "OK"

(Example ER (av): 2.5e - 5-"OK)

NG

Turn the POWER OFF in case of NG once, and perform the adjustment once again.

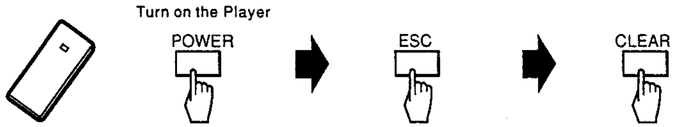
OK

If error rate is OK, locks a root of tangential and radial adjustment screws with the Screw tight, and go to step ❸.

Screw tight: GYL1001

③ Initialize the Focus Sweep Setting

Purpose: To set the sweep which was correct with the individual Traverse mechanism.



Note: Be sure to perform this step when replaced the Pickup or Traverse mechanism.

7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 ID NUMBER AND ID DATA SETTING

■ Entering the ID Number and ID Data for Players with DVD-Audio Compatibility

It is necessary with a player with DVD-audio compatibility to set an individual number (ID number) and ID data. If the number and data are not set correctly with the following procedure, operations in the future may not be guaranteed. You will find the ID number to be set on the yellow label on the rear panel.

Important: If no yellow label is found on the rear panel, write down the specified ID number by checking it according to "How to confirm the ID number" shown below.

■ The Input is Necessary When:

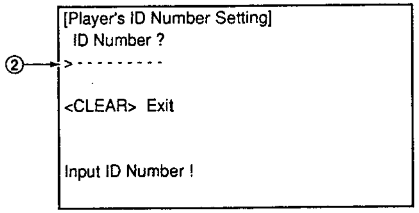
- Downloading FLASH-ROM is finished. (The latest version must be downloaded when a repair is made.)
- "No ID Number" is displayed on the screen or FL display immediately after the power is turned on or in Stop mode.
- If "No ID DATA" is displayed, the ID data must be entered.

Note:
Be sure to enter the ID number in Stop mode.
Use the service remote control (GGF1067) for operations. Only opening/closing of the tray are performed from the player.

■ How to Input the ID Number and ID Data

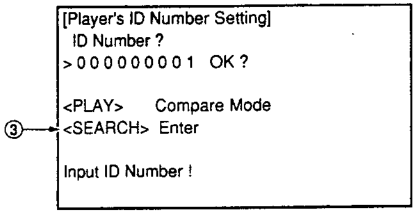
① To enter the input mode, press ESC + STEREO in a status with no ID number set, such as after FLASH-ROM downloading.

② As number input is enabled when the unit enters the input mode, input the 9-digit ID number.
(The entered number is also displayed on the FL display.)



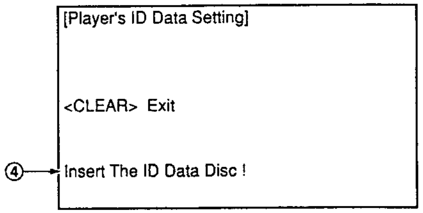
```
[Player's ID Number Setting]
 ID Number ?
>---------

<CLEAR>  Exit


Input ID Number !
```

③ After inputting the number, press SEARCH to register the ID number.



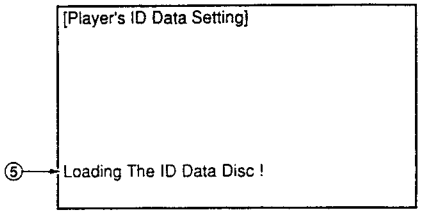
```
[Player's ID Number Setting]
 ID Number ?
>000000001  OK ?

<PLAY>      Compare Mode
<SEARCH>  Enter

Input ID Number !
```

④ When the ID number has been registered, the unit enters the ID data input mode. (The FL display indicates "NO ID DATA.")
In this condition, place the ID data disc on the tray and close the tray using the CLOSE key "■/⏏" on the player.



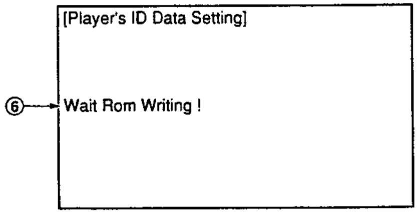
```
[Player's ID Data Setting]


<CLEAR>  Exit


Insert The ID Data Disc !
```

⑤ While the data are being read, the message shown in the figure at left is displayed on the screen.
(The FL display indicates "RD ID DATA.")



```
[Player's ID Data Setting]






Loading The ID Data Disc !
```

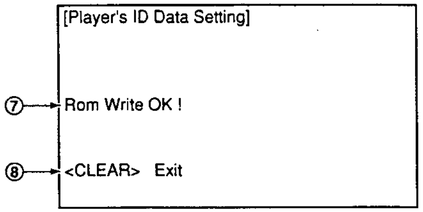
⑥ When the ID data have been read, the data are written to the FLASH-ROM.
(The FL display indicates "WR ID DATA.")



```
[Player's ID Data Setting]

Wait Rom Writing !
```

⑦ When the ID data have been written to the FLASH-ROM, the message "Rom Write OK" is displayed on the screen.
(The FL display indicates "ID DATA OK.")

⑧ After confirming this message, press CLEAR to exit the input mode.



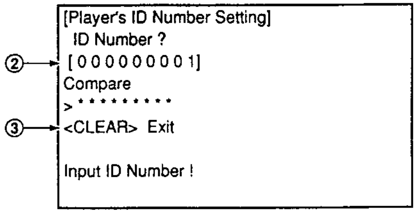
```
[Player's ID Data Setting]

Rom Write OK !

<CLEAR>  Exit
```

■ How to Confirm the ID Number

① Press ESC+STEREO with an ID number set, and the unit enters the ID number confirmation mode.

② The set ID number is displayed on the screen (and on the FL display), permitting you to confirm it.

③ To exit this mode, press CLEAR.

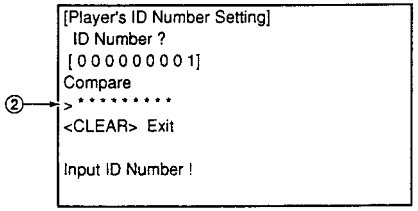


```
[Player's ID Number Setting]
 ID Number ?
[000000001]
Compare
>*********
<CLEAR>  Exit

Input ID Number !
```

■ How to Clear the ID Number

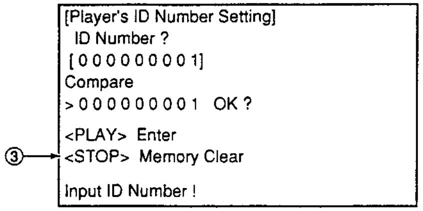
① Press ESC+STEREO with an ID number set, and the unit enters the ID number confirmation mode.

② Input the same number as the ID number you have set.



```
[Player's ID Number Setting]
 ID Number ?
[000000001]
Compare
>*********
<CLEAR>  Exit

Input ID Number !
```

③ After inputting the number, press STOP.
Only when the entered number matches the set ID number, the ID number is cleared and the unit exits this mode.
If the numbers do not match, you must return to step 2.
(STOP is not accepted until 9 digits are entered.)



```
[Player's ID Number Setting]
 ID Number ?
[000000001]
Compare
>000000001  OK ?
<PLAY>  Enter
<STOP>  Memory Clear

Input ID Number !
```

7.1.2 SELF-DIAGNOSTIC FUNCTION OF PICKUP DEFECTIVE

This unit can confirm the laser diode current value (DVD: 650nm, CD: 780nm) of pickup on the Test Mode screen.
(Press the ESC → TEST keys in order on the test mode remote control unit (GGF1067) to enter the test mode.)

It's effective in case of the following condition.

Symptom

- Indicates "No Disc" in FL display.
- Player does not playback, etc..

Procedure of Self-Diagnosis

① Enter the Test mode.

② When diagnosing the 650nm laser diode:
Press the TEST → 1 keys in order, and turn on the laser diode (It light-up for nine seconds.).
When diagnosing the 780nm laser diode:
Press the TEST → 4 keys in order, and turn on the laser diode (It light-up for nine seconds.).

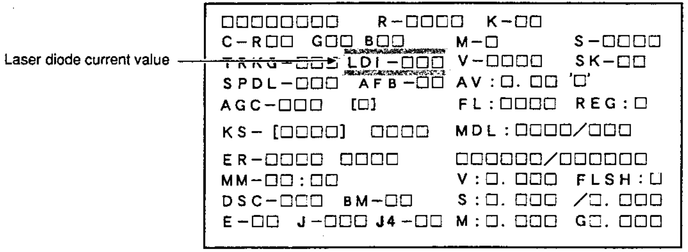
When let it turn on once again after performed ② once,
After pressed REP.B key once
650nm: Press the TEST → 1 keys in order
780nm: Press the TEST → 4 keys in order

③ Confirm the indicated value of the laser diode current (LDI). (Refer to following figure.)

④ **When indicated value is more than 100, pickup is defective. → Replacement is necessary**
Replace the Traverse Mechanism Assy or Pickup.

Note : When a DVD disc or a CD disc is played in the test mode, this function is effective.

Character in bold : Item name
□: Information display



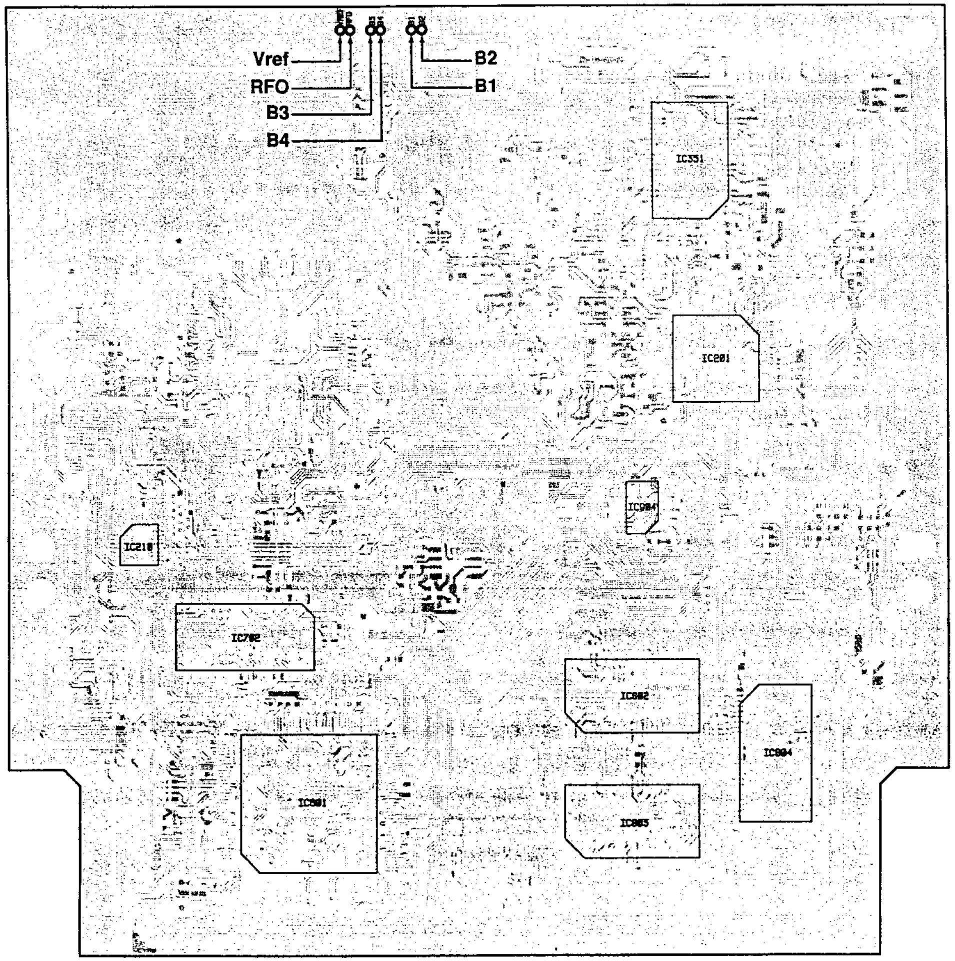
```
□□□□□□□□     R－□□□□   K－□□
C－R□□  G□□  B□□       M－□         S－□□□□
TRKG－□□□  LDI－□□□   V－□□□□      SK－□□
SPDL－□□□   AFB－□□   AV：□. □□  '□'
AGC－□□□    [□]        FL：□□□□    REG：□
KS－ [□□□□]  □□□□     MDL：□□□□/□□□
ER－□□□□  □□□□        □□□□□□/□□□□□□
MM－□□：□□              V：□. □□□   FLSH：□
DSC－□□□  BM－□□       S：□. □□□   /□. □□□
E－□□  J－□□□  J4－□□  M：□. □□□   G□. □□□
```

Test Mode Screen Display

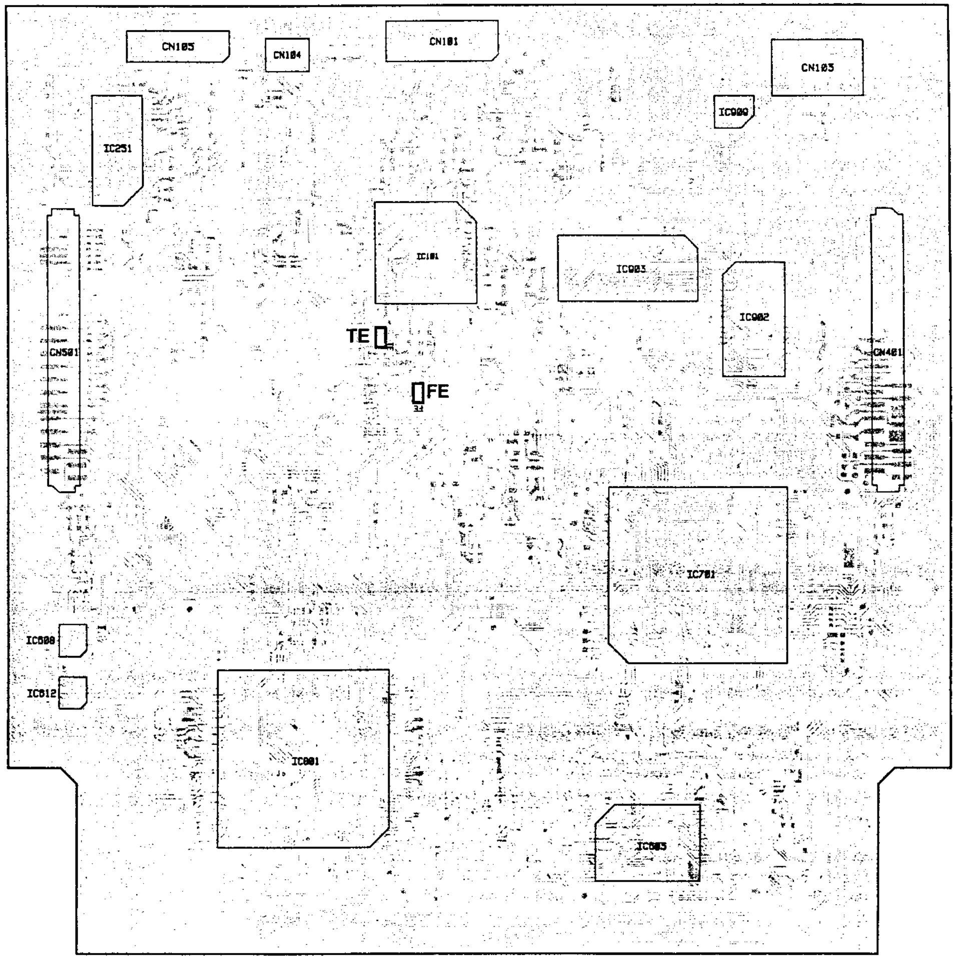
7.1.3 TEST POINTS LOCATION

This model has not test terminal.
Please use following points on the DVDM Assy when checking RF, FE and TE, etc..

B DVDM ASSY **SIDE A**


Vref
RFO
B3
B4
B2
B1
IC351
IC201
IC210
IC702
IC802
IC804
IC801
IC805

SIDE B **B** DVDM ASSY


CN105
CN104
CN101
CN103
IC900
IC251
IC101
IC903
IC902
CN501
CN401
TE
FE
IC701
IC812
IC801
IC803

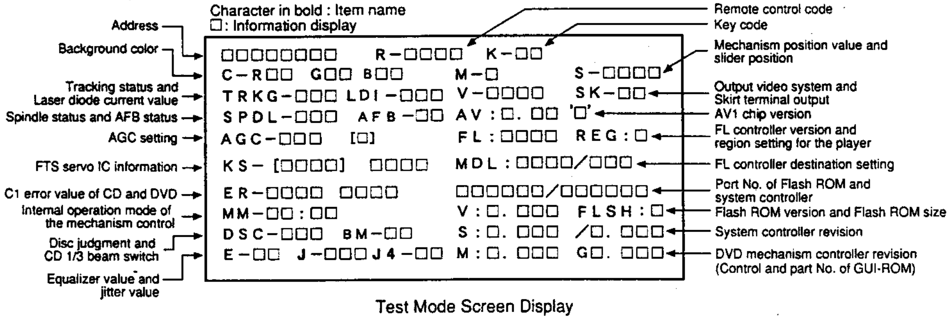
7.1.4 TEST MODE SCREEN DISPLAY

■ TEST MODE SCREEN DISPLAY

When the test mode is entered, press the ESC button and the TEST button in order of the test mode remote control unit (GGF1067).

Consecutive double-OSD display is supported during test mode. The screen is composed 10 lines with a maximum of 32 characters per line. It can't be used with the debugging display mode together.

• Screen Composition


Character in bold : Item name
□: Information display
Address
Background color
Tracking status and Laser diode current value
Spindle status and AFB status
AGC setting
FTS servo IC information
C1 error value of CD and DVD
Internal operation mode of the mechanism control
Disc judgment and CD 1/3 beam switch
Equalizer value and jitter value
□□□□□□□□ R−□□□□ K−□□
C−R□□ G□□ B□□ M−□ S−□□□□
TRKG−□□□ LDI −□□□ V−□□□□ SK−□□
SPDL−□□□ AFB −□□ AV : □. □□ '□'
AGC−□□□ [□] FL : □□□□ REG : □
KS− [□□□□] □□□□ MDL : □□□□/□□□
ER−□□□□ □□□□ □□□□□□/□□□□□□
MM−□□ : □□ V : □. □□□ FLSH : □
DSC−□□□ BM−□□ S : □. □□□ /□. □□□
E−□□ J−□□□ J4 −□□ M : □. □□□ G□. □□□
Remote control code
Key code
Mechanism position value and slider position
Output video system and Skirt terminal output
AV1 chip version
FL controller version and region setting for the player
FL controller destination setting
Port No. of Flash ROM and system controller
Flash ROM version and Flash ROM size
System controller revision
DVD mechanism controller revision
(Control and part No. of GUI-ROM)

Test Mode Screen Display
(First Screen Display)

Caution :
The first screen and second screen switch by pressing [DISPLAY] key of the remote control unit.
It is only a version display part on the lower right of the screen those contents of display change.
ATB : ON/OFF information display and AGC manual setting display deleted with the second generation.
The displays of Tilt error value, Tilt servo status and pickup DVD/CLD display deleted with the third generation becomes LD part is deleted.

• Description of Each Item on the Display

(1) Address indication

The address being traced is displayed in number.

DVD : ID indication (hexadecimal number, 8 digits) [* * * * * * * *]

CD : A-TIME (min. sec.) [0 0 0 0 * * * *]

(Note : For DVDs, decimal-number indication is possible.)

(2) Code indication of the remote control unit [R – * * * *]

The code for the key pressed on the remote control unit, which is received by the FL controller, is displayed while the key is pressed. In the case of the double code, the second code will be displayed.

(3) Key code indication for the main unit [K – * *]

The code for the key pressed on the main unit, which is received by the system controller, is displayed while the key is pressed.

(4) Background color indication [C – R* * G* * B* *]

(5) ① Tracking status [TRKG – ***]

Tracking on	[ON]
Tracking off	[OFF]

② Laser diode current value [LDI – *]**

(6) ① Spindle status [SPDL – * * *]

Spindle accelerator and brake, free-runnimg	[A/B]
FG servo	[FG]
Rough, velocity phase servo	[SRV]
Offset addition, rough, velocity phase servo	[O_S]

② AFB status [AFB – * *]

ON	[ON]
OFF	[OFF]

(7) Mechanism position value [M – *]

Position code	[1] to [3]

(8) Slider position [S – * * * *]

CD TOC area	[IN]
CD active area	[CD]

(9) AGC setting [AGC – * *]

AGC on	[AGC-ON]
AGC off	[AGC-OFF]

(10) Output video system [V – * * * *]

NTSC system	[NTSC]
PAL system	[PAL]
Auto-setting	[AUTO]

Skirt terminal output [SK – * *]

VIDEO	[00]
S-VIDEO	[01]
RGB	[02]

Note : Display only the model which can do the output setting of skirt terminal.

(11) FTS servo IC information

DSP coefficient indication [KS – [* * * *] * * * *]

Displays the address (four digits) of the specified coefficient and the setting value (four digits) with [TEST] and [9] keys.

(12) Error rate indication

① C1 error value of CD	[ER – C1 * * * *]
② C1 error value of DVD	[ER – * * * * * * * *]

(13) Internal operation mode of mechanism controller [MM – * * : * *]

Internal mechanism mode (2 digits) and internal mechanism step (2 digits) of the mechanism controller

(14) ① Disk sensing [DSC – * * *]

The type of discs loaded is displayed.
[DVD], [CD], [VCD], [ ]

② CD 1/3 beam switch [BM – * *]

(15) ① Equalizer value [E – * *]

② Jitter value [J – * *]

Make the jitter four times, and renew it in every 0.5 second. [J4 – * *]

CD is effective only in the jitter value.

(16) Version of the AV-1 chip [AV : * . * *' *']

(17) ① Version of the FL controller [FL : * * * *]

② Region setting of the player [REG : *]

Setting value	[1] to [6]

(18) Destination setting of the FL controller [MDL : * * * * / * * *]

Four charactors in the front represent the type of model : three charactors in the back represent the destination code.
J : /J, K : /KU, /KC, /KU/KC, R : /RAM, /RL, /RD, /LB, WY : /WY

(19) The part number of the flash ROM and system controller [* * * * * * / * * * * * * * *]

① Part number of the flash ROM <Front>
(Example) VYW1536-A = W1536A
(Example) PD6256A9 = 6256A9

② Part number of the system controller <Back>
(Example) PD3381T1 = 3381T1

(20) ① Version of the flash ROM [V : * . * * *]

② Flash ROM size [FLSH = *]

(21) Revision of the system controller [S : * . * * * / * . * *]

① Revision number of the external ROM part (flash ROM) of the system controller <Front>

② Revision of the internal ROM part of the system controller <Back>

(22) Revision of the DVD mechanism controller [M : * . * * *]

Revision number of the external ROM part (flash ROM) of the DVD mechanism controller

(23) Control and part numbers of the GUI-ROM [GUI : * * * *]

No GUI model displays as "— / —".
OEM model displays the part number of GUI-ROM [GUI : * * * *]

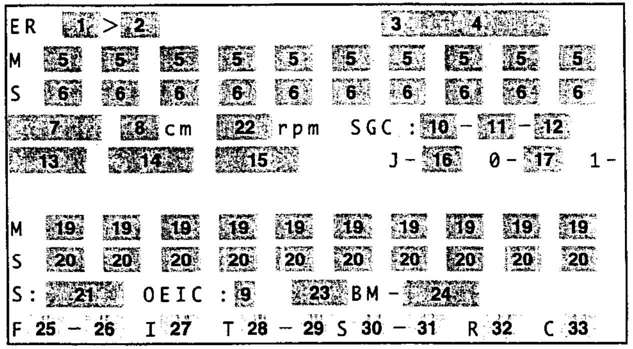
■ DEBUGGING SCREEN SPECIFICATION FOR THE MECHANISM CONTROLLER

- This specifications is subject to change without notice.

① Indication Method of The Mechanism Controller Debugging Screen

A debugging screen of the mechanism controller is indicated when pressing the test mode remote control unit [GGF1067] in order of the ESC and CHP/TM buttons.
Releace from debugging screen display of the mechanism controller with the ESC button.

② Screen Layout

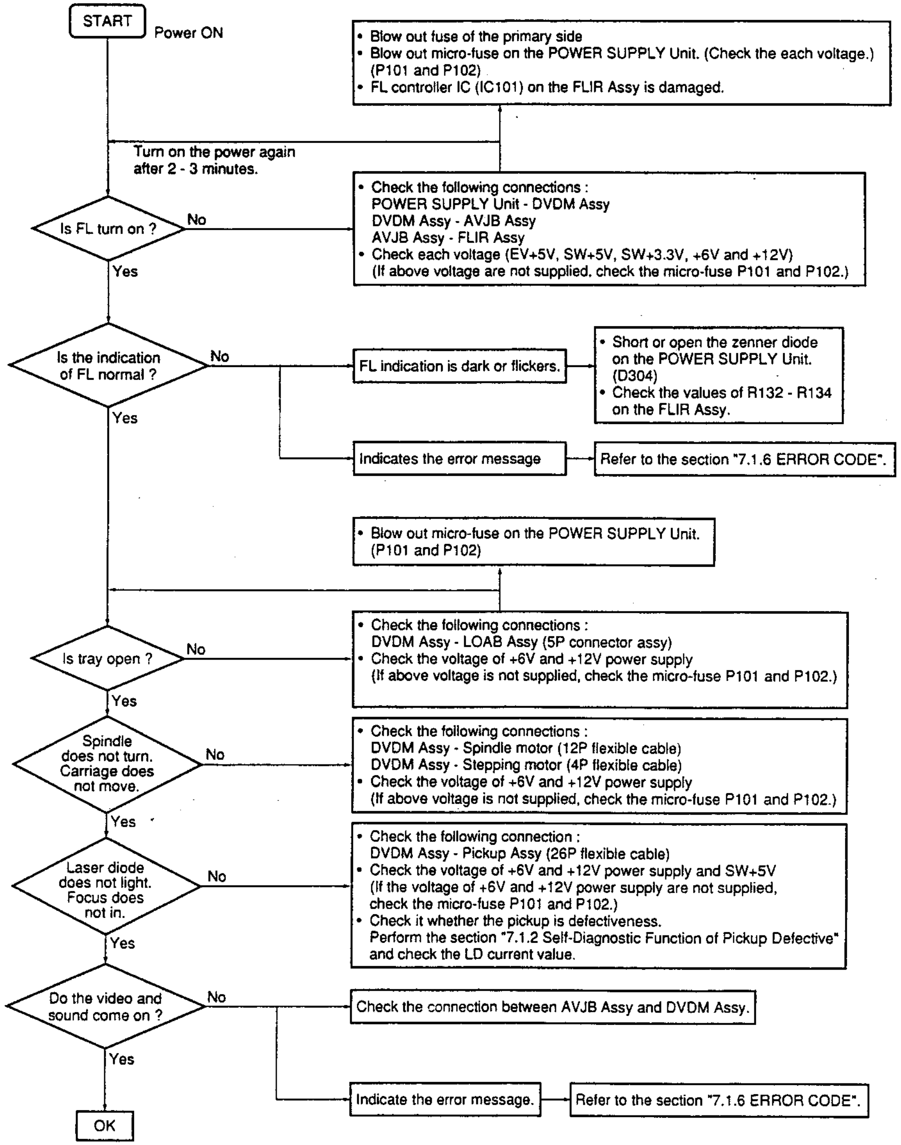

ER 1 > 2 3 4
M 5 5 5 5 5 5 5 5 5 5
S 6 6 6 6 6 6 6 6 6 6
7 8 cm 22 rpm SGC : 10 - 11 - 12
13 14 15 J - 16 0 - 17 1 -
M 19 19 19 19 19 19 19 19 19 19
S 20 20 20 20 20 20 20 20 20 20
S : 21 OEIC : 9 23 BM - 24
F 25 - 26 I 27 T 28 - 29 S 30 - 31 R 32 C 33

③ Indication Contents

1. The error that became the trigger that an error of 2 occurred.
   There are many cases same as 2.
2. The error number that transferred to the system controller
   Refer to the error list about contents of error number.
3. Code read in state (it does not support in this unit)
   When X is indicated, ID or subcode are not able to read in.
   When X is not indicated, they are able to read in.
4. ID or subcode (it does not support in this unit)
   Subcode indicates the A time.
5. Inside mode of the mechanism controller when an error of 1 occurred
   It can indicate to a maximum 10 mode. Indicate it in order of an old mode from the left, and go right, and become a new mode. Indicate only a nest share of the mode.
6. Processing step of inside mode of 5
   It can grasp the mode reaching an error and transition of step by watching 5 and 6 and it can specify the occurrence place of most errors.
7. Disk information in the mechanism controller
   ? : Indistinctness
   NO : There is no disc
   DVD 1 : DVD single layer
   DVD 2 : DVD dual layer
   CD : CD
   CDR : CD-R or CD-RW
   CDR P : PRD of CD-R or CD-RW
8. As a result of 8cm /12cm distinction
   ? : Indistinctness (undistinction)
   8 : 8 cm
   12 : 12 cm
9. OEIC gain (it does not support in this unit)
   H : OEIC HIGH gain
   L : OEIC LOW gain
10. SGC gain for LD of 780nm
    It indicates a step using in the mechanism controller inside with a hexadecimal number.
    Set the gain so that S curve becomes 1.8V (p-p) in disc distinction.
11. SGC gain for LD of 650nm For L0.
    It indicates a step using in the mechanism controller inside with a hexadecimal number. Set a gain so that S curve becomes 1.8V (p-p) in disc distinction.
12. SGC gain for LD of 650nm For L1.
    It indicates a step using in the mechanism controller inside with a hexadecimal number. Set a gain so that a S curve becomes 1.8V (p-p) in disc distinction.
13. RF count value for disc distinction
    RF count value to use the disc distinction. It compares threshold value of 14 and 15 and distinguishes the disc.
14. Disc distinction threshold value (DVD and CD)
    Threshold value of the disc distinction. Distinguish it from DVD if bigger than this value, and distinguish it from CD if small.
15. Disc distinction threshold value (CD and unrecorded disc)
    Threshold value of the disc distinction. Distinguish it from CD if bigger than this value, and distinguish it from an unrecorded disc if small.
16. Current jitter value
    Indicate the value that was read in from the MY-CHIP (IC701) in DVD, and indicate the value that was read in from the servo DSP in CD.
17. Focus balance setting value of L0
18. Focus balance setting value of L1
19. Current mechanism controller inside mode
    (it does not support in this unit)
    It can indicate to a maximum 10 modes. Indicate only a nest share of the mode.
20. Processing step of 11 inside modes
    (it does not support in this unit)
    It can grasp the current mode, the mode reaching it and transition of step by watching 19 and 20.
21. Spindle control state of MY-CHIP (IC701)
    (it does not support in this unit)
    OFF : Motor off condition
    A/B : Accelerator and brakes
    FG : FG servo
    RVP : Rough speed phase servo
    ORVP : Rough speed phase servo of offset addition
22. Rotation number of spindle motor
    Do not FG read in ? indication (during spindle stop).
23. Tracking error generation system
    (it does not support in this unit)
    1: 1 beam (DPD)
    3: 3 beams
24. TZC count value (it does not support in this unit)
    The value that counted the number of TZC for one rotation in the tracking open state.
    When this value is more than 512 with CD, set it in 1 beam because the eccentric is large.
    DVD does not measure it because it is 1 beam fixed (indication is 0000).
25. It indicates the frequency that entered the focus backup
    Hexadecimal number indication. Counter does not reset till turns the power off after turning it on. Due to a 1 byte counter, next of FF becomes 00.
26. It indicates focus backup limit frequency with the hexadecimal number
    Initial value is 14H, it does decrement whenever enter the focus backup and it gives up backup if it became 0. Then the error is generated. After reverted from the backup, When not enter the backup and pass fixed time (1500ms), return to initial value again.
27. It indicates the frequency that entered the internal circumference plunging into backup of the sled
    Hexadecimal number indication. Counter does not reset till turns the power off after turning it on. Due to a 1 byte counter, next of FF becomes 00.
28. It indicates the frequency that entered the tracking overrun backup
    Hexadecimal number indication. Counter does not reset till turns the power off after turning it on. Due to a 1 byte counter, next of FF becomes 00.
29. It indicates the limit frequency of tracking overrun backup with a hexadecimal number
    Initial value is 03H, it does decrement whenever enter the tracking overrun backup and it gives up backup if it became 0.
30. It indicates the frequency that entered sled overrun backup
    Hexadecimal number indication. Counter does not reset till turns the power off after turning it on. Due to a 1 byte counter, next of FF becomes 00.
31. It indicates the limit frequency of sled overrun backup with a hexadecimal number
    Initial value is 03H, it does decrement whenever enter the sled overrun backup and it gives up backup if it became 0.
32. It indicates the frequency that entered the tracking close NG backup
    Hexadecimal number indication. Counter does not reset till turns the power off after turning it on. Next of FF is be a 1 byte counter in 00.
    The hexadecimal number indication which indicates the frequency that reads
33. ID/subQ, and entered NG backup
    Hexadecimal number indication. A counter does not reset it till cuts it off after turning it on. Due to a 1 byte counter, next of FF becomes 00.
34. An address to indicate in 35
    Set it by using RS232.I
    (an address) Set it with DA.
35. Contents of an address indicated in 34.

7.1.5 TROUBLE SHOOTING

- No Power ON
- *FL is not turned ON*
- FL indication is unusual


START
Power ON
• Blow out fuse of the primary side
• Blow out micro-fuse on the POWER SUPPLY Unit. (Check the each voltage.) (P101 and P102)
• FL controller IC (IC101) on the FLIR Assy is damaged.
Turn on the power again after 2 - 3 minutes.
Is FL turn on ?
No
Yes
• Check the following connections : POWER SUPPLY Unit - DVDM Assy DVDM Assy - AVJB Assy AVJB Assy - FLIR Assy
• Check each voltage (EV+5V, SW+5V, SW+3.3V, +6V and +12V) (If above voltage are not supplied, check the micro-fuse P101 and P102.)
Is the indication of FL normal ?
No
Yes
FL indication is dark or flickers.
• Short or open the zenner diode on the POWER SUPPLY Unit. (D304)
• Check the values of R132 - R134 on the FLIR Assy.
Indicates the error message
Refer to the section "7.1.6 ERROR CODE".
• Blow out micro-fuse on the POWER SUPPLY Unit. (P101 and P102)
Is tray open ?
No
Yes
• Check the following connections : DVDM Assy - LOAB Assy (5P connector assy)
• Check the voltage of +6V and +12V power supply (If above voltage is not supplied, check the micro-fuse P101 and P102.)
Spindle does not turn. Carriage does not move.
No
Yes
• Check the following connections : DVDM Assy - Spindle motor (12P flexible cable) DVDM Assy - Stepping motor (4P flexible cable)
• Check the voltage of +6V and +12V power supply (If above voltage is not supplied, check the micro-fuse P101 and P102.)
Laser diode does not light. Focus does not in.
No
Yes
• Check the following connection : DVDM Assy - Pickup Assy (26P flexible cable)
• Check the voltage of +6V and +12V power supply and SW+5V (If the voltage of +6V and +12V power supply are not supplied, check the micro-fuse P101 and P102.)
• Check it whether the pickup is defectiveness. Perform the section "7.1.2 Self-Diagnostic Function of Pickup Defective" and check the LD current value.
Do the video and sound come on ?
No
Yes
Check the connection between AVJB Assy and DVDM Assy.
Indicate the error message.
Refer to the section "7.1.6 ERROR CODE".
OK

7.1.6 ERROR CODE

Error codes that are displayed on the FL display without using the remote control unit

FL Display	Possible causes	Operation of the unit
AV1 VER	AV-1 chip is not a match with the program of system controller	The sound may not out with the specific audio.
CPU AERR	CPU address error (Hardware is unusual.)	No operation
DMA AERR	DMA address error (Hardware is unusual.)	No operation
FLASH ID	Difference in versions of the internal ROM of the system controller and of the flash ROM, or bus line failure or reverse installation	No operation
FLASH WRP	Write protect error of the flash ROM	No operation
FLASH SIG	Difference in part number of the flash ROM (When the ROM which could't be used was used.)	No operation
FLASH SUM	Check sum error of the flash ROM (It exceeds the regular size.) or reverse installation (Hardware is unusual.)	No operation
FLASH SIZE	Size error of the flash ROM (Use 4 or 8 M-bit.)	No operation
ILLGAL	The system controller fetched a code other than an operation code (Hardware is unusual.)	No operation
RESERVE	Undefined interrupt (Hardware is unusual.)	No operation
SLOT	Inappropriate slot command issued (Hardware is unusual.)	No operation
SDSP PWER	Access error to the servo DSP or clock does not oscillation (Hardware is unusual.)	Accept only OFF operation of the POWER key of the main unit. Remote control unit is impossible.

Error codes that are displayed on the FL display by using the remote control unit (Mechanism controller error)
To display: ESC + DISPLAY + DISPLAY; Location of the display: At the two digits of center of the FL display
To display the error history: ESC + DISPLAY + One shot; Location of the display: TV screen

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
11	Search timeout	Search could not be complete within 7 seconds.	Search could not be complete within 7 seconds, and it could not enter the target area within 7 seconds by VCD scan.	CD : Stops, DVD : Continues operation
12	Search retry error	A search could not be completed after 3 retries, search backup was executed 4 times, or in a case of timeout (6 seconds) while the unit was tracing 11 tracks or more beyond the target while the search operation was converging.	Backup against slider skip was executed 4 times during a search, or slider skip twice resulted in starting from the read-in point.	CD : Stops, DVD : Continues operation
19	Tracing timeout while converging	Timeout (10.5 seconds) while tracing at the stage of convergence of a search.		Stop
1B	Index 0 search error		During Track (Index) Search, the search for the beginning of a program could not be completed within 3 seconds (20 seconds in the case of Index Search) after positioning based on the TOC data was completed.	Stop
1C	Wobble distinction error	Distinguished RW disc without wobble.		Read the RW control data.
22	Timeout of slider inner circumference	Inside switch could not ON within 3 seconds.		Stop
23	Timeout of slider outer circumference	Inside switch could not OFF within 2 seconds.		Stop

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
33	No FOK pulse during playback CLVA	When the focus was deviated continuously 20 times.		Adjusts focus at the innermost circumference and tries to return to its position where the error was generated (for 3 times),then opens. If the same error persists after one retry, the tray opens. (No FOK pulse)
38	Disc-type-sensing error	If normal starting was impossible in the following three cases, disc-type sensing will be retried if other errors occure excepting C5 error. However, when the focus error "33" was occured continuously 3 times, it is finished as "38 error" at the moment: (1) startup with the first disc-type-sensing result, (2) forced startup with another disc by designating the disc type, (3) forced startup with the original disc by designating the disc type.		Open
39	SGC converge timeout	SGC could not converge during detects the peak		Open
41	Spindle timeout	The unit did not enter Stop mode within 10 seconds of issuance of a Stop command.		Stop
48	Spindle FG transition timeout	The spindle could not converge into within ± 12% of the target FG rotation speed within 10 seconds after spindle kick. The first time after startup (the first time after disc distinction), it doesn't become the number of the target rotation within five seconds. The first time after startup, detects the abnormal rotation number of high-speed continuously 3 loops. DVD: 5 to 9 mS , CD: 40 to 60 mS		Stops. (FG timeout)
49	Spindle PLL transition timeout	After the second times after startup, it doesn't become the number of the target rotation within five seconds. Detects the abnormal high-speed or low-speed rotations. DVD: 5 to 9 mS , CD: 40 to 60 mS		Stops. ("73" is displayed during starting process.)
4A	Spindle lock timeout	Spindle could not lock more than 1.5 seconds before start the AFB.		Stops. ("73" is displayed during starting process.)
51	Auto sequence timeout of peak detection	ABUSY did not return within 1 second after the DDTCT (peak detection) command was sent.		Stop
52	Auto sequence timeout of focus jump down	ABUSY did not return within 30 mS after the FJMPD (Focus jump 1 to 0) command was sent.		Stop
53	Auto sequence timeout of focus jump up	ABUSY did not return within 30 mS after the FJMPU (Focus jump 0 to 1) command was sent.		Stop
54	Auto sequence timeout of play AGC	ABUSY did not return within 50 mS after the GSUMON (play-AGC-measuring) command was sent.		Stop
55	Auto sequence timeout of disc-type-sensing	ABUSY did not return within 2 seconds after the DJSRT (disc-sensing) command was sent.		Stop
56	Auto sequence timeout of ATB2	ABUSY did not return within 1 second after the TBLOFS (Internal ATB after the completion of external ATB) command was sent.		Stop
57	Auto sequence timeout of tracking servo ON	ABUSY did not return within 500 mS after the TSON (tracking servo ON) command was sent.		Stop
58	Auto sequence timeout of ATB1	ABUSY did not return within 200 mS after the TBL (external ATB) command was sent.		Stop
59	Auto sequence timeout of focus gain adjustment	ABUSY did not return within 2 seconds after the FGN (focus gain adjustment) command was sent.		Stop
5A	Auto sequence timeout of tracking gain adjustment	ABUSY did not return within 2 seconds after TGN (tracking gain adjustment) command was sent.		Stop
5B	Auto sequence timeout of offset adjustment	ABUSY did not return within 1 second after the CMDAVE (offset adjustment) command was sent.		Stop

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
5C	Auto sequence timeout of modulation factor measurement	ABUSY did not return within 200 mS after the ADJMIR (modulation factor measurement) command was sent.		Stop
5D	Auto sequence timeout of auto focus bias	ABUSY did not return within 2 seconds after the AFB (auto focus bias) command was sent.		Stop
5F	Auto sequence already busy	A command could not be sent because ABUSY was low. ABUSY did not return within 200 mS after TLV command was sent.		Stop
62	Pause retry error	Pause mode could not be restored within three retries after it had been released.		Continues operation
71	ID can not read during tracing	An ID could not be read for 1 second or more.		Stop
72	Subcode check failure during playback		No frame could be read for 3 seconds or more.	Stop
73	ID can not read at the startup	An ID could not be read within 1 second after the AFB adjustment had been finished.		Opens (ID readout failure)
74	Subcode check failure during startup		No subcode could be read within 3 seconds after AFB adjustment had been finished.	Opens (Subcode readout failure).
81	Timeout for reading TOC of the mechanism controller		TOC readout took 30 seconds or more.	Stop
82	Timeout for reading TOC of the system controller		Reading TOC of the system controller took 30 seconds or more.	Stop
A1	Communication timeout of DSP command	A command could not be issued to DSP because Command Busy (XCBUSY) was in force (XCBUSY = L) for a specified time (about 200 mS).		Open
A2	Communication timeout for reading DSP coefficient	Command Busy (XCBUSY) was in force for a specified time (about 200 mS) before and after a coefficient read command was issued to DSP, or the address echo-back after command issuance did not match the setup address.		Open
A3	Communication timeout for writing DSP coefficient	Command Busy (XCBUSY) was in force for a specified time (about 1024 mS) before and after the coefficient write command was issued to DSP.		Open
A4	Communication timeout for continuously writing DSP coefficient	Command Busy (XCBUSY) was in force for 200 µS during continuous coefficient writing, or before and after a continuous write command was issued to DSP.		Open
B1	Timeout error for backup	In the tracing state during the backup sequence, codes could not be read for 1 second or more. In the backup sequence, tracking ON sequence of the servo DSP could not be completed even if more than 500 mS after the tracking ON command was issued.		Stops
B2	Retry error for backup	Tracing impossible after retring the tracking ON for 3 times in the backup sequence.		Stops
B3	Retry error for trace	During tracing, runaway was detected after three iterations of backup operations for detecting runaway.		Stops
C3	Detection of tracking overcurrent	During playback, the overcurrent detection port was at L for 300 ms or more continuously.		Stops (the mechanical controller operates independently).
(C5)	Short-circuit test corresponding error	While the power was on, the overcurrent detection port was at L for 40 ms or more continuously.		Turns off the power instantly (No indication on the FL display and no writing to flash memory)
E3	Violation against digital copy guard			Stops

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
F5	Tray being pushed	The tray switch that had been Open mode was forcibly changed to a mode other than Open by an external force.		Closes
F8	Loading timeout	Loading, unloading or clamping could not be completed within a specified time (about 5 seconds).		Reverses the loading direction. It timeout is repeated upon retry, the unit stops.
FC	Focus	The following error occured eight times. (1) Focus ON sequence could not be completed even if more than two seconds after the focus ON command (to the servo DSP) was sent. (2) Focus IN sequence was finished, actually focus IN was not completed.		Stops wherever possible then opens (stops in the case of side B).

Error codes that are displayed on the FL display by using the remote control unit (Device error)
To display : ESC + DISPLAY + DISPLAY ; Location of the display : At the two digits of left of the FL display

FL	Description of Error	Causes if with a DVD	Causes if with a CD	Operation of the Unit
bit3=1 08 etc.	AV1 access error (read, write NG)			No operation or it becomes debugging indication if the power is able to ON.
bit2=1 04 etc.	MY CHIP access error			
bit1=1 01 etc.	SRAM access error			

7.1.7 DISASSEMBLY

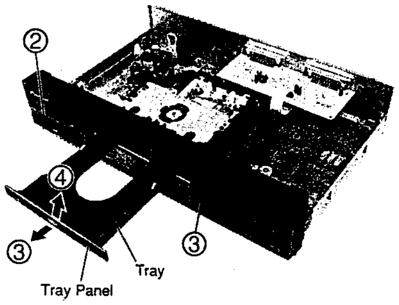
■ DIAGNOSIS OF PCBs

Note

When diagnosing the unit, be sure to use two connection cables for service. (Part No. : GGD1271)

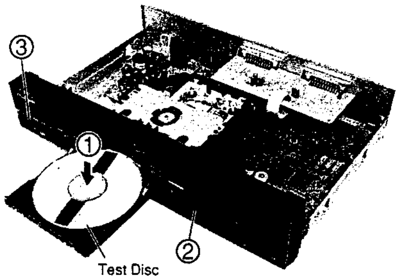
1 Bonnet and Tray Panel

① Remove the Bonnet (Screws × 7)
② Power ON
③ Tray open (⏏)
④ Remove the Tray Panel



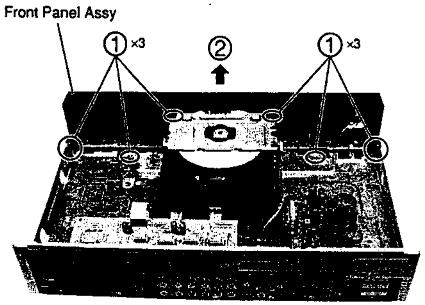
2 Test Disc Set

① Set the Test Disc
② Tray close (⏏) → Clamp the Test Disc
③ Power OFF
④ Pull out the Power Cord from the outlet



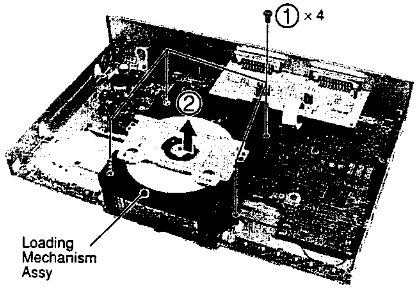
3 Front Panel Assy

① Unhook (×6)
② Remove the Front Panel



4 Loading Mechanism Assy

① Remove four screws.
② Remove the Loading Mechanism Assy. (Remove the Connector (×2).)

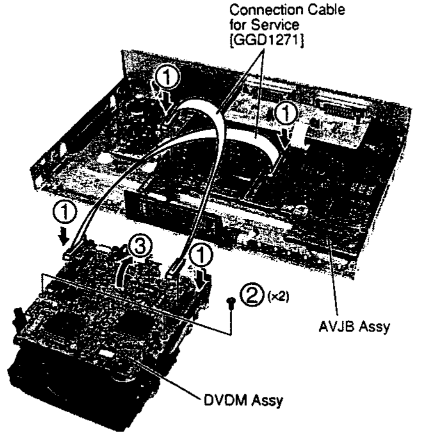


5 *Styling of the Connection Cables*

① Connect two Connection Cables for Service (GGD1271) between DVDM Assy and AVJB Assy.

② Remove two screws.

③ Remove the DVDM Assy.

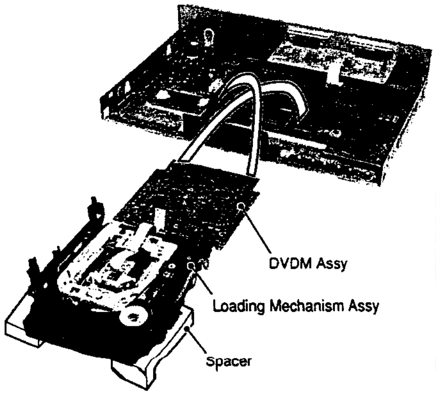

Connection Cable for Service [GGD1271]
①
①
①
①
③
② (×2)
AVJB Assy
DVDM Assy

6 Diagnosis (1)

① Arrange the Loading Mechanism Assy and the DVDM Assy like the figure below.

② Put in spacers under the Loading Mechanism Assy not to rub the Clamper.

③ Playback with a test disc, and diagnose the DVDM Assy and the other Assys.


DVDM Assy
Loading Mechanism Assy
Spacer

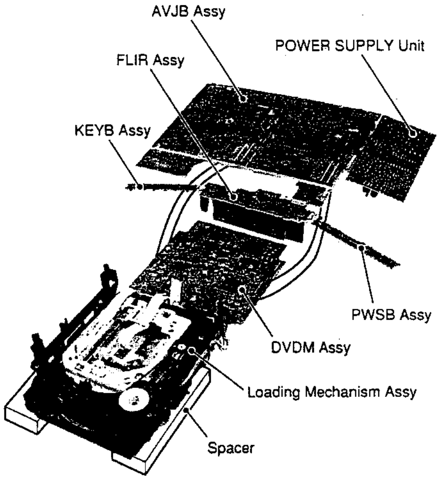
7 Diagnosis (2)

① Remove the Rear Panel (Screws × 15)

② Remove the PCBs (Screws × 14)

③ Arrange the Loading Mechanism Assy and the PCBs like the figure below.

④ Playback with a test disc, and diagnose the AVJB Assy and the other Assys.


AVJB Assy
POWER SUPPLY Unit
FLIR Assy
KEYB Assy
PWSB Assy
DVDM Assy
Loading Mechanism Assy
Spacer

Disassembly of the Traverse Mechanism Assy and the Pickup Assy

① Remove the Bonnet and Tray Panel.

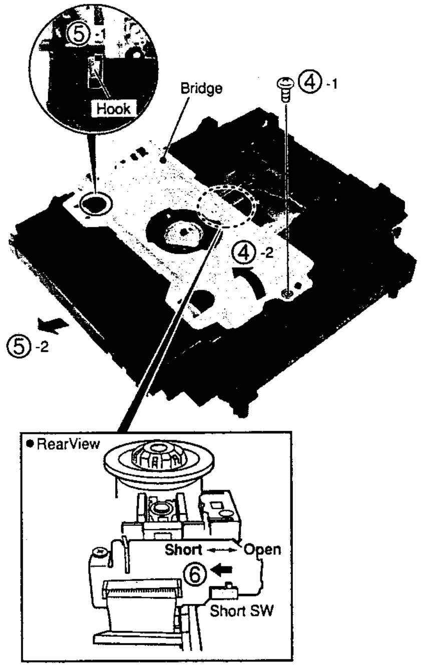
② Remove the Front Panel.

③ Remove the Loading Mechanism Assy (Screws ×4).

④ Remove the Bridge (Screw ×1).

⑤ Pull out the Tray and remove it while unhooking a Hook.

⑥ Turn the Short SW to Short side.

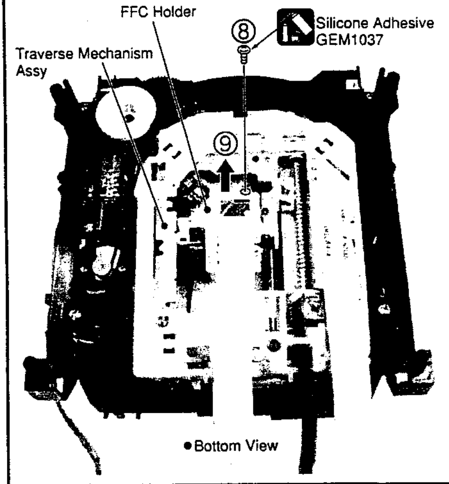

⑤-1
Hook
Bridge
④-1
④-2
⑤-2
● RearView
Short ←→ Open
⑥
Short SW

⑦ Remove the DVDM Assy (Screws ×2).

⑧ Remove a screw.

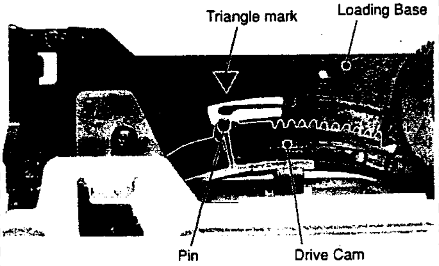
Cautions:
Screw is locked with Silicone adhesive.
Please lock it with Silicone adhesive when installs it.

⑨ Remove the FFC Holder with the state which Flexible Cable was atatched.


FFC Holder
⑧
Silicone Adhesive GEM1037
Traverse Mechanism Assy
⑨
● Bottom View

☞ Caution in the tray insertion

In the Tray insertion, insert it after matching a triangle mark of the Loading Base and a position of pin of the Drive Cam.


Triangle mark
Loading Base
Pin
Drive Cam

Pickup Assy

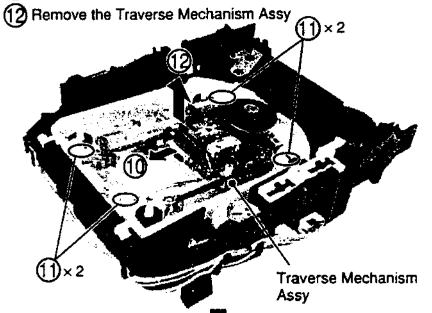
Traverse Mechanism Assy

• When Removing The Traverse Mechanism Assy

⑩ Remove the Pickup Flexible Cable

⑪ Unhook (×4)

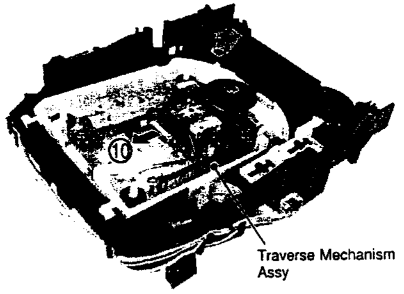
⑫ Remove the Traverse Mechanism Assy


⑪ × 2
⑫
⑩
⑪ × 2
Traverse Mechanism Assy

Exchange

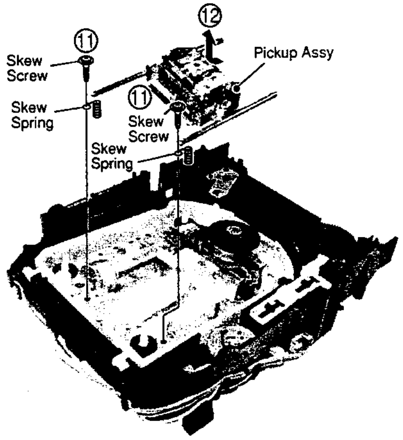
• When Removing The Pickup Assy

⑩ Remove the Pickup Flexible Cable.


⑩
Traverse Mechanism Assy

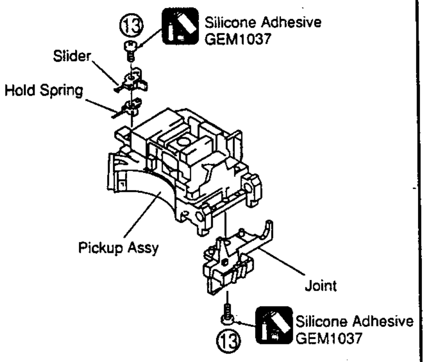
⑪ Remove two Skew Screws and two Skew Springs.

⑫ Remove the Pickup Assy.


⑫
⑪
Skew Screw
Pickup Assy
Skew Spring
⑪
Skew Screw
Skew Spring

⑬ Remove two screws.

Cautions:
Screw is locked with Silicone adhesive.
Please lock it with Silicone adhesive when installs it.

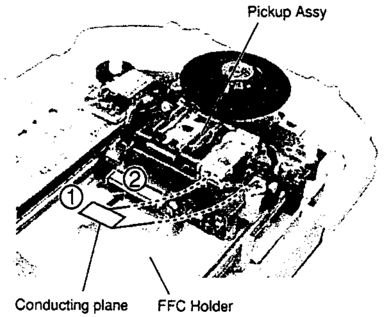

⑬
Silicone Adhesive GEM1037
Slider
Hold Spring
Pickup Assy
Joint
Silicone Adhesive GEM1037
⑬

Exchange

☞ Styling the Pickup Flexible Cable

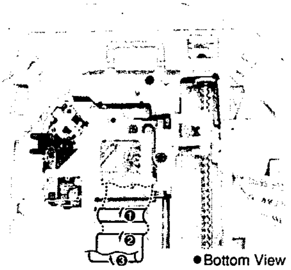
① Fold a edge of lining part of the Pickup Flexible Cable.

② Insert the Pickup Flexible Cable in connector, and lock it surely.

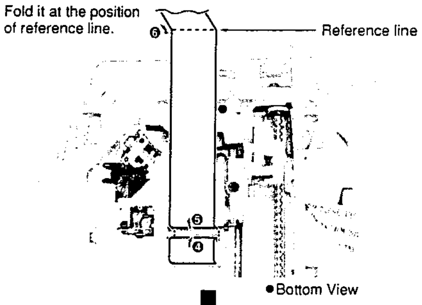

Pickup Assy
②
①
Conducting plane
FFC Holder

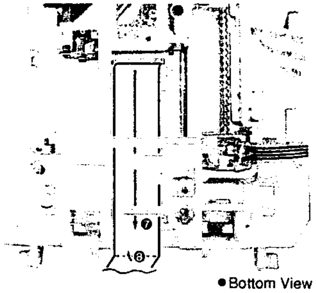
Caution:
Move the Pickup to the innermost of the disc.

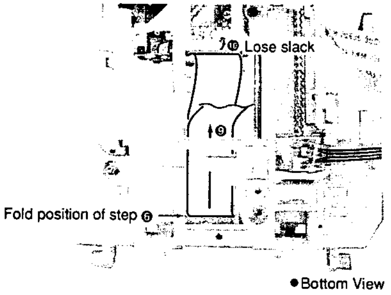
③ Perform the styling as shown in figure below.

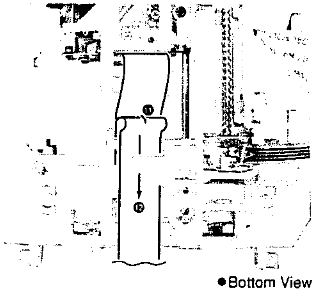

❶
❷
❸
• Bottom View

Fold it at the position of reference line.


❻
Reference line
❺
❹
• Bottom View


❼
❽
• Bottom View


❿ Lose slack
❾
Fold position of step ❻
• Bottom View


⓫
⓬
• Bottom View

7.2 IC

• The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

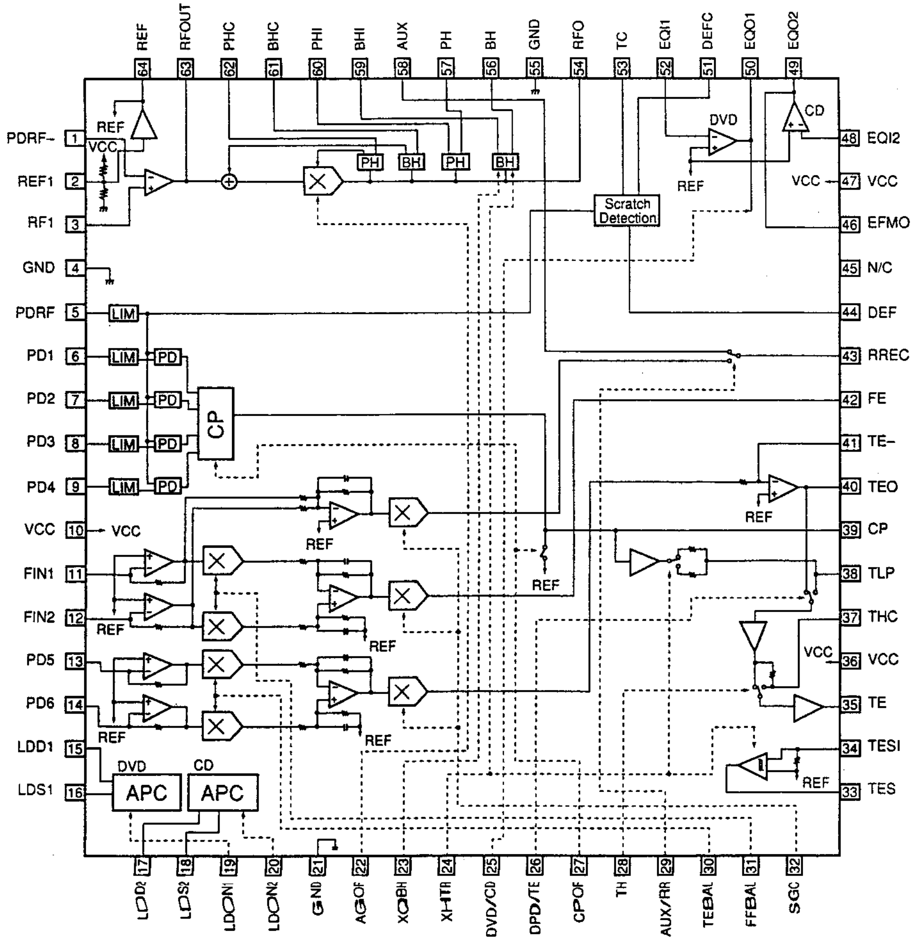
•List of IC

LA9701M, LC78652W, BA6664FM, PD6345A, M65774BFP, XCA5636PV150, ADV7190KST, PE5251A

■ LA9701M (DVDM ASSY : IC101)

• RF IC

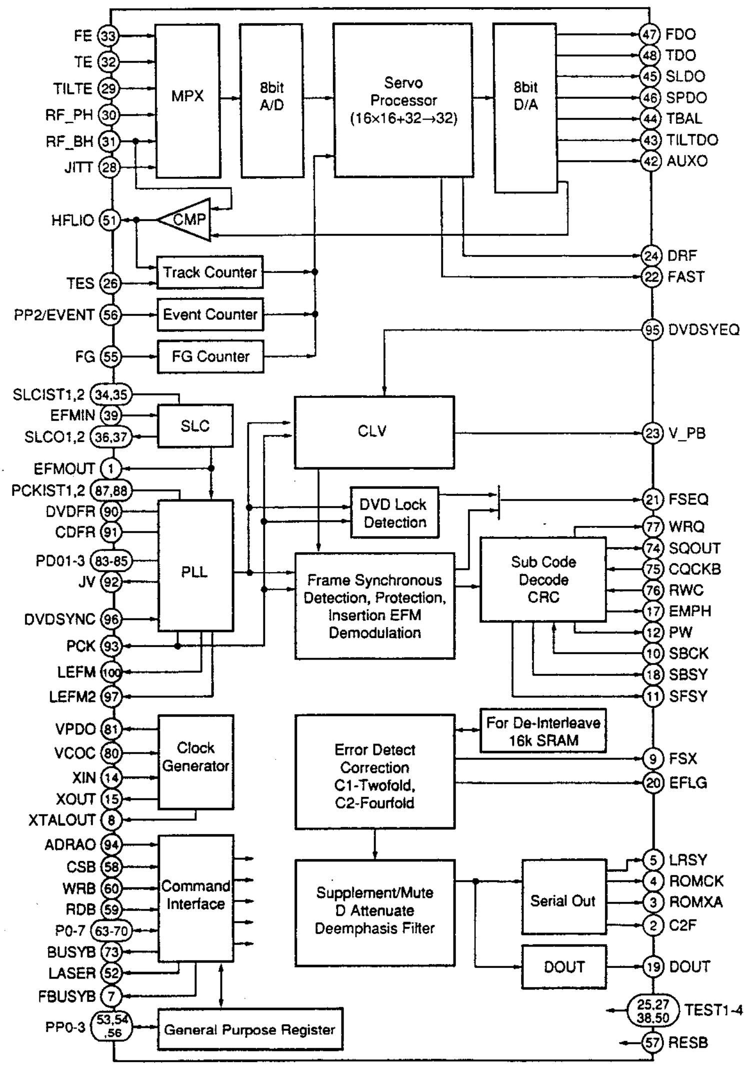
• Block Diagram


REF
RFOUT
PHC
BHC
PHI
BHI
AUX
PH
BH
GND
RFO
TC
EQI1
DEFC
EQO1
EQO2
64
63
62
61
60
59
58
57
56
55
54
53
52
51
50
49
PDRF– 1
REF1 2
RF1 3
GND 4
PDRF 5
PD1 6
PD2 7
PD3 8
PD4 9
VCC 10
FIN1 11
FIN2 12
PD5 13
PD6 14
LDD1 15
LDS1 16
48 EQI2
47 VCC
46 EFMO
45 N/C
44 DEF
43 RREC
42 FE
41 TE–
40 TEO
39 CP
38 TLP
37 THC
36 VCC
35 TE
34 TESI
33 TES
17 LDD2
18 LDS2
19 LDON1
20 LDON2
21 GND
22 AGOF
23 XOBH
24 XHTR
25 DVD/CD
26 DPD/TE
27 CPOF
28 TH
29 AUX/RR
30 TEBAL
31 FFBAL
32 SGC
REF
VCC
PH
BH
PH
BH
DVD
CD
REF
VCC
Scratch Detection
LIM
PD
CP
REF
DVD
CD
APC
APC

■ LC78652W (DVDM ASSY : IC201)

• Servo DSP IC

• Block Diagram


FE 33
TE 32
TILTE 29
RF_PH 30
RF_BH 31
JITT 28
HFLIO 51
TES 26
PP2/EVENT 56
FG 55
SLCIST1,2 34,35
EFMIN 39
SLCO1,2 36,37
EFMOUT 1
PCKIST1,2 87,88
DVDFR 90
CDFR 91
PD01-3 83-85
JV 92
DVDSYNC 96
PCK 93
LEFM 100
LEFM2 97
VPDO 81
VCOC 80
XIN 14
XOUT 15
XTALOUT 8
ADRAO 94
CSB 58
WRB 60
RDB 59
P0-7 63-70
BUSYB 73
LASER 52
FBUSYB 7
PP0-3 53,54,56
MPX
8bit A/D
Servo Processor (16×16+32→32)
8bit D/A
CMP
Track Counter
Event Counter
FG Counter
SLC
CLV
DVD Lock Detection
PLL
Frame Synchronous Detection, Protection, Insertion EFM Demodulation
Sub Code Decode CRC
Clock Generator
Error Detect Correction C1-Twofold, C2-Fourfold
For De-Interleave 16k SRAM
Command Interface
Supplement/Mute D Attenuate Deemphasis Filter
Serial Out
DOUT
General Purpose Register
47 FDO
48 TDO
45 SLDO
46 SPDO
44 TBAL
43 TILTDO
42 AUXO
24 DRF
22 FAST
95 DVDSYEQ
23 V_PB
21 FSEQ
77 WRQ
74 SQOUT
75 CQCKB
76 RWC
17 EMPH
12 PW
10 SBCK
18 SBSY
11 SFSY
9 FSX
20 EFLG
5 LRSY
4 ROMCK
3 ROMXA
2 C2F
19 DOUT
25,27 38,50 TEST1-4
57 RESB

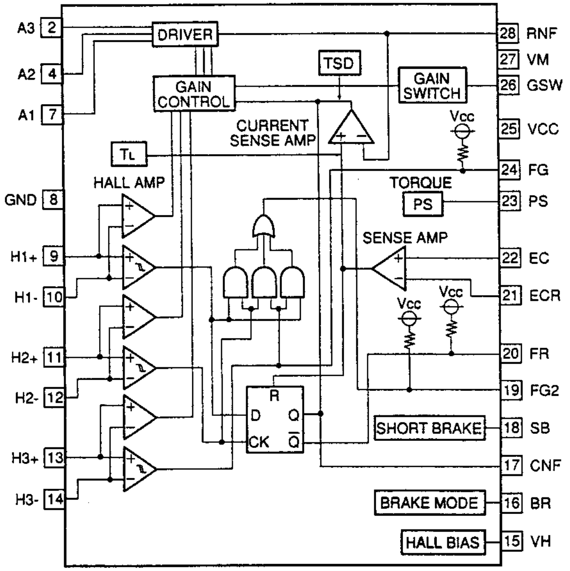
- **Pin Function**

No.	Pin Name	I/O	Pin Function
1	EFMOUT	O	Output the state that was binary-stated value EFM
2	C2F	O	C2 flag output
3	ROMXA	O	CD-ROM data output
4	ROMCK	O	Shift clock output for CD-ROM data output
5	LRSY	O	L/R clock output for CD-ROM data output
6	PP3	I/O	General-purpose port input/output / DVD sync. signal input N ch-OD output
7	FBUSYB	O	Busy signal output of DSP process operation N ch-OD output
8	XTALOUT	O	External system clock output
9	FSX	O	CD 1 frame sync. signal output
10	SBCK	I	Subcode reading out clock input
11	SFSY	O	Frame sync. signal output of subcode
12	PW	O	Subcode P, Q, R, S, T, U, V and W output
13	VSS	–	GND pin
14	XIN	I	Connect a crystal resonator (16.9344MHz)
15	XOUT	O	Connect a crystal resonator
16	DVDD1	–	3.3V power supply of the oscillation circuit
17	EMPH	O	Monitor pin of the deemphasis
18	SBSY	O	Sync. signal output of the subcode block
19	DOUT	O	Audio EIAJ data output
20	EFLG	O	Error correction state monitor of the error correction C1 and C2
21	FSEQ	O	Detection monitor of the CD/DVD frame sync. signal
22	FAST	O	Playback speed monitor N ch-OD output
23	V_PB	O	Monitor output of the rough servo/CLV control
24	DRF	O	In focus monitor
25	TEST3	I	Test input 3
26	TES	I	Tracking error signal input
27	TEST2	I	Test input 2
28	JITT	I	Jitter quantity detecting signal input of EFM PLL
29	TILTE	I	Tilt error signal input
30	RF_PH	I	RF peak hold signal input
31	RF_BH	I	RF bottom hold signal input
32	TE	I	Tracking error signal input
33	FE	I	Focus error signal input
34	SLCIST1	–	Current setting pin 1 of the constant current charge pump for SLC
35	SLCIST2	–	Current setting pin 2 of the constant current charge pump for SLC
36	SLCO1	O	Control output 1 for SLC
37	SLCO2	O	Control output 2 for SLC
38	TEST1	I	Test input 1
39	EFMIN	I	EFM/EFM + input
40	AVDD	–	5V power supply of A/D and D/A for servo
41	AVSS	–	GND of A/D and D/A for servo
42	AUXO	O	DA auxiliary output
43	TILTDO	O	Tilt control signal output
44	TBAL	O	Tracking balance control signal output
45	SLDO	O	Sled control signal output
46	SPDO	O	Spindle control signal output
47	FDO	O	Focus control signal output
48	TDO	O	Tracking control signal output
49	VREF	–	Reference level of D/A for servo
50	TEST4	I	Test input 4
51	HFLIO	I/O	Mirror detection signal input/output
52	LASER	O	Output pin for laser ON/OFF control
53	PP0/DVD_CDB	I/O	General-purpose port input/output / Disc discrimination signal output
54	PP1/CRCERRB	I/O	General-purpose port input/output / Subcode CRC result signal output
55	FG	I	FG counter input
56	PP2/EVENT	I/O	General-purpose port input/output / Event counter input
57	RESB	I	Reset input
58	CSB	I	Chip select input
59	RDB	I	Internal state reading signal input
60	WRB	I	Command / data writing signal input
61	DVDD2	–	5V power supply
62	VSS	–	GND
63	P0	I/O	Command / data input/output
64	P1		
65	P2		
66	P3		
67	P4		
68	P5		
69	P6		
70	P7		
71	VSS	–	GND
72	DVDD1	–	3.3V power supply for internal
73	BUSYB	O	Busy signal output of command process
74	SQOUT	O	Serial output of subcode Q
75	CQCKB	I	Shift clock input for subcode Q data output
76	RWC	I	Update permission input of subcode Q
77	WRQ	O	Read out ready monitor of subcode Q
78	AVSS	–	PLL GND for internal system clock
79	VRPFR	–	VCO oscillation range setting of PLL for system clock
80	VCOC	I	Connect a PLL filter for system clock
81	VPDO	O	
82	AVDD	–	PLL 5V power supply for system clock
83	PDO1	I/O	PLL filter connection pin 1 for EFM playback
84	PDO2	I/O	PLL filter connection pin 2 for EFM playback
85	PDO3	I/O	PLL filter connection pin 3 for EFM playback
86	AVSS	–	PLL GND for EFM playback
87	PCKIST1	–	Current setting 1 of PLL constant current charge pump for EFM playback
88	PCKIST2	–	Current setting 2 of PLL constant current charge pump for EFM playback
89	AVDD	–	PLL 5V power supply for EFM playback
90	DVDFR	–	VCO oscillation range setting of PLL for EFM playback 1
91	CDFR	–	VCO oscillation range setting of PLL for EFM playback 2
92	JV	O	Jitter output of PLL clock for EFM playback
93	PCK	O	Bit clock output for EFM playback
94	ADRAO	I	Address input
95	DVDSYEQ	I	DVD synchronize pulse input
96	DVDSYNC	I	DVD synchronous signal input
97	LEFM2	O	Output the state that cut and out a signal which was binary-stated value EFM with PCK 2
98	DVDD1	–	3.3V power supply for I/O
99	VSS	–	GND
100	LEFM	O	Output the state that cut and out a signal which was binary-stated value EFM with PCK 1

■ BA6664FM (DVDM ASSY : IC251)

- Three-phase Motor Driver

• Block Diagram


A3 2
A2 4
A1 7
GND 8
H1+ 9
H1- 10
H2+ 11
H2- 12
H3+ 13
H3- 14
DRIVER
GAIN CONTROL
TSD
GAIN SWITCH
CURRENT SENSE AMP
Vcc
TL
HALL AMP
TORQUE PS
SENSE AMP
R
D Q
CK Q̄
SHORT BRAKE
BRAKE MODE
HALL BIAS
28 RNF
27 VM
26 GSW
25 VCC
24 FG
23 PS
22 EC
21 ECR
20 FR
19 FG2
18 SB
17 CNF
16 BR
15 VH

• Block Diagram

No.	Pin Name	Pin Function	No.	Pin Name	Pin Function
1	N.C.	N.C.	16	BR	Brake mode switching pin
2	A3	Output pin	17	CNF	Capacitor connection pin for phase compensation
3	N.C.	N.C.	18	SB	Short brake pin
4	A2	Output pin	19	FG2	FG 3-phase mix signal output pin
5	N.C.	N.C.	20	FR	Rotation detecting pin
6	N.C.	N.C.	21	ECR	Control reference pin of output voltage
7	A1	Output pin	22	EC	Output voltage control pin
8	GND	GND pin	23	PS	Power save pin
9	H1+	Hall signal input pins	24	FG	FG signal output pin
10	H1-		25	VCC	Power supply pin
11	H2+		26	GSW	Gain switching pin
12	H2-		27	VM	Motor power pin
13	H3+		28	RNF	Resistor connection pin for output current detection
14	H3-		FIN	FIN	GND
15	VH	Hall bias pin			

■ PD6345A (DVDM ASSY : IC601)

- FR CPU

• Pin Function

No.	Mark	Pin Name	I/O	Pin Function
1	P20/D16	D0	I/O	Data bus input/output
2	P21/D17	D1		
3	P22/D18	D2		
4	P23/D19	D3		
5	P24/D20	D4		
6	P25/D21	D5		
7	P26/D22	D6		
8	P27/D23	D7		
9	P30/D24	D8		
10	P31/D25	D9		
11	P32/D26	D10		
12	P33/D27	D11		
13	P34/D28	D12		
14	P35/D29	D13		
15	P36/D30	D14		
16	P37/D31	D15		
17	VSS	GND	–	Ground
18	P40/A00	A0	O	Address bus output
19	P41/A01	A1		
20	P42/A02	A2		
21	P43/A03	A3		
22	P44/A04	A4		
23	P45/A05	A5		
24	P46/A06	A6		
25	P47/A07	A7		
26	VCC3	V+3.3D	–	Power supply
27	VCC2	V+2.5D	–	Power supply
28	P50/A08	A8	O	Address bus output
29	P51/A09	A9		
30	P52/A10	A10		
31	P53/A11	A11		
32	P54/A12	A12		
33	P55/A13	A13		
34	P56/A14	A14		
35	P57/A15	A15		
36	VSS	GND	–	Ground
37	P60/A16	A16	O	Address bus output
38	P61/A17	A17		
39	P62/A18	A18		
40	P63/A19	A19		
41	P64/A20	A20		
42	P65/A21	TOFSTA	O	Tracking offset injection -A for servo
43	P66/A22	TOFSTC	O	Tracking offset injection -C for servo
44	P67/A23	WBL	O	For Wobble detection corresponding to DVD R/W (main)
45	DAVS	GND	–	Ground
46	DAVC	V+3.3D	–	Power supply
47	DA0	STEP1	I	For stepping motor control
48	DA1	STEP2	I	
49	DA2	LODRV	I	Loading, door and select motor drive

No.	Mark	Pin Name	I/O	Pin Function
50	AN0	STEP2	I	For stepper control 2 For offset cancel of D/A output
51	AN1	STEP1	I	For stepper control 1 For offset cancel of D/A output
52	AN2	NAP SW	I	Rear panel H/M/L=M/A/P
53	AN3	XOEM	I	OEM model protection input
54	AN4	LD CUR	I	Input for LD current value indication
55	AN5	SELPOS	I	Tray selector input of microchanger
56	AN6	CLAMPSW	I	Clamp position SW input
57	AN7	LODPOS	I	Loading clamp position SW input
58	AVCC	V+3.3D	–	Power supply
59	AVRH	V+3.3D	–	Power supply
60	AVSS/AVRI	GND	–	Ground
61	VSS	GND	–	Ground
62	PP0/ATGX	SLDPOS	I	SW input of slider inside position
63	PP1/FRCK	GSW	O	Gain up at ACBR (at ACBR: H, others: L)
64	PP2/IN0	780ON	I	ON/OFF control signal of 780nm laser diode
65	PP3/IN1	SEDO	O	Tray rotation drive output
66	PP4/IN2	XMON	O	Mute of DRV (spindle motor ON: H)
67	PP5/IN3	XDRVMUT	O	FTS driver mute output
68	PP6	LT1	O	Communication response to the FL controller
69	PP7	XRDY	I	Communication request from the FL controller
70	VCC3	V+3.3D	–	Power supply
71	VCC2	V+2.5D	–	Power supply
72	PO0/OC0	XCURDET	I	Actuator current detection input Servo OFF for "L" 300ms
73	PO1/OC1	XCBUSY	I	Busy signal of command process Command acceptable : "L"
74	PO2/OC2	XDSPRST	O	Servo DSP reset
75	PO3/OC3	BCA	–	BCA read signal (at BCA read: H) (Not used)
76	PO4/OC4	DSCSNS/ XCD4X	I/O	Disc detection pulse "L": Disc exist Correspond to fourth speed CD playback ("L": Fourth speed)
77	PO5/OC5	PPCNT	O	Switch of TZC in WBL traversal (at PP: H)
78	PO6/OC6	XDFINH	O	Defect signal control (DEFECT ON: Hi-Z; OFF: "L")
79	PO7/OC7	DPD/TE	O	H=1 beam, L=3 beams
80	VSS	GND	–	Ground
81	PN0/AIN0	DVD/XCD	O	RF EQ switching signal at DVD/CD "H": DVD, "L": CD
82	PN1/BIN0	AGOFF	O	"H": Turn off AGC of RFIC
83	PN2/AIN1	650X780	O	780nm/650nm switching signal
84	PN3/BIN1	LD ON	O	ON/OFF control signal of laser diode
85	PN4/AIN2	FOFST2	O	Focus offset adjustment 1 (Tri-value control "H", "L", Hi-Z)
86	PN5/BIN2	FOFST1	O	Focus offset adjustment 2 (Tri-value control "H", "L", Hi-Z)
87	PN6/AIN3	XCD2X	O	For VCD double speed playback
88	PN7/BIN3	OEICG	O	"H": Gain of OEIC up to 6dB
89	PM0/ZIN0	TRYPOS	I	Count input of disc number
90	PM1/ZIN1	N/XP SW	O	Video encoder control port (NTSC/PAL)
91	PM2/ZIN2	V SEL	O	(Composite, S) / (YCbCr) or (RGB) switch
92	PM3/ZIN3	V SEL2	O	(Composite) of skirt terminal / (S) switch
93	PL0/SDA1	SDAI		12C control lines
94	PL1/SDA0	SDAO		
95	PL2/SCL1	SCLI		
96	PL3/SCL0	SCLO		
97	PL4	CTS	I	RS-232C clear to send input
98	PL5	DTR	O	RS-232C clear to send output
99	PL6/UC0	-	–	–
100	VSS	GND	–	Ground

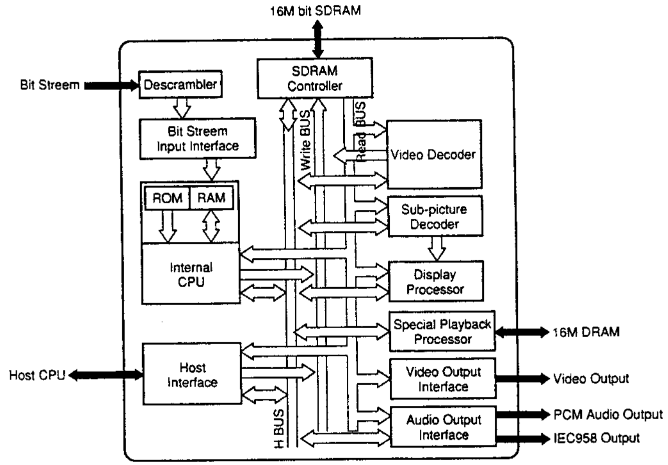
No.	Mark	Pin Name	I/O	Pin Function
101	PK0/TIN0	XVQERST	O	VQE3 reset signal
102	PK1/TIN1	XCSPRO1	–	Serial communication enable of the progressive converter IC
103	PK2/TIN2	XCSVQE5	–	Serial communication enable of VQE5 IC
104	PK3/TIN3	N.C.	–	N.C.
105	PK4/TOT0	44X48	O	DAC and DASP supply clock fs 44/48 selection
106	PK5/TOT1	DI ERR	I	DIR reception error (unlock signal) input
107	PK6/TOT2	XMICON2 AOSEL1	O	Mic center MIX signal for multi CH AV-1/audio DSP switch (front L/R data)
108	PK7/TOT3	AOSEL0	–	AV1 output AOD and AO0 switch
109	VCC3	V+3.3D	–	Power supply
110	VCC2	V+2.5D	–	Power supply
111	PJ0/INT0	XINT0	I	
112	PJ1/INT1	XINT1	I	
113	PJ2/INT2	XIRQ10	I	MY chip interrupt #0
114	PJ3/INT3	XIRQ11	I	MY chip interrupt #1
115	PJ4/INT4	XABUSY	I	Busy signal of DSP process operation "L"
116	PJ5/INT5	THLD	I	Playback speed monitoring signal
117	PJ6/INT6	SBSY	I	Sync. signal of subcode block (period SO+SI "H")
118	PJ7/INT7	N.C.	I	N.C.
119	PI0/SI0	SSI	I	Serial bus data input
120	PI1/SO0	SSO	O	Serial bus data output
121	PI2/SCK0	SSCK	I	Serial bus clock input
122	PI3/SI1	RXD	I	RS-232C RXD
123	PI4/SO1	TXD	O	RS-232C TXD
124	PI5/SCK1	SELMOD	–	Audio DSP mode switch
125	PH0/SI2	RESET2	–	Reset for DSP 2
126	PH1/SO2	XCSADSP1	O	CS for DSP 2
127	PH2/SCK2	XCSSPD	–	Latch signal of serial/parallel IC for generating audio DSP control signal
128	MD0	GND	–	Ground
129	MD1	GND	–	
130	MD2	GND	–	
131	VSS	GND	–	Ground
132	VCC2	V+2.5D	–	Power supply
133	VSS	GND	–	Ground
134	X1	EXTAL	O	
135	X0	XTAL	I	
136	VCC3	V+3.3D	–	Power supply
137	PC0/DREQ2	LFEON RESET1	O	Select Mix to front L/R of LFE element DSP 1 reset
138	PC1/DACK2	XMICON1 AV1/XSDSP	O	Mic front L/R MIX signal for 2 ch AV-1/servo DSP switch
139	PC2/DEOP2	6CHMD	O	DAC output 2 ch/6 ch switch (←XDVRST2)
140	PB0/DREQ0	XDREQ0	I	DMA response output to BY Chip
141	PB1/DACK0	DACK0	O	DMA request input from BY Chip
142	PB2/DEOP0	N.C.	–	N.C.
143	PB3/DREQ1	XDREQ1	I	DMA response output to AV-1 Chip
144	PB4/DACK1	XDACK1	O	DMA request input from AV-1 Chip
145	PB5/DEOP1	XEXCKON	O	ON/OFF switch of DSP external clock
146	PB6/IOWRX	DOISEL1	O	Digital output switch 1 of audio DSP (AV-1. DSP and GND)
147	PB7/IORDX	DOISEL2	O	Digital output switch 2 of audio DSP (AV-1. DSP and GND)
148	VSS	GND	–	Ground
149	PA0/CSOX	XCS20	O	Chip select output to Flash ROM
150	PA1/CS1X	XCS6	O	AV-1 Chip select

No.	Mark	Pin Name	I/O	Pin Function
151	PA2/CS2X	XCS3	O	Chip select of PD4995A (MY Chip)
152	PA3/CS3X	XCS4	O	Chip select of servo DSP
153	PA4/CS4X	XCS23	O	Chip select output to SRAM (1M)
154	PA5/CS5X	N.C.	O	N.C.
155	PA6/CS6X	N.C.	O	N.C.
156	PA7/CS7X	N.C.	O	N.C.
157	VCC3	V+3.3D	–	Power supply
158	VCC2	V+2.5D	–	Power supply
159	NMIX	–	–	V+3.3D fixed
160	HSTX	–	–	V+2.5D fixed
161	INITX	XINIT	I	
162	P80/RDY	RDY	I	
163	P81/BGRNTX	XAMUTE	I	Final stage mute of 2 ch audio output
164	P82/BRQ	XMMUTE	O	Audio multi channel mute
165	P83/RDX	XRD	O	
166	P84/WR0X	XWR0	O	
167	P85/WR1X	XWR1	O	
168	VSS	GND	–	Ground
169	P90/SYSCLK	SYSCLK	O	
170	P91	DFRST	–	DAC reset (for front L/R)
171	P92/MCLK	DFRST1	–	DAC reset (for center, surround and LFE)
172	P93	XCSDF0	O	DAC chip select (←XLAT3)
173	P94/LBAX	XCSDF1	O	DAC chip select for center, surround and LFE
174	P95/BAAX	XAQRST	O	AQE reset
175	P96	XCSAQE	O	AQE chip select
176	P97/WEX	TM ENT	I	Test mode entry

■ M65774BFP (DVDM ASSY : IC801)

- MPEG2 Decoder IC

- Block Diagram


16M bit SDRAM
Bit Streem
Descrambler
SDRAM Controller
Bit Streem Input Interface
Write BUS
Read BUS
Video Decoder
ROM
RAM
Sub-picture Decoder
Internal CPU
Display Processor
Special Playback Processor
16M DRAM
Host CPU
Host Interface
Video Output Interface
Video Output
Audio Output Interface
PCM Audio Output
IEC958 Output
H BUS

- Pin Function

No.	Pin Name	I/O	Pin Function
1	GND	I	Ground
2	HD0	I/O	Data input and output port
3	HD1		
4	HD2		
5	HD3		
6	HD4		
7	5VDD	I	5V power supply
8	VDD	I	Power supply
9	HD5	I/O	Data input and output port
10	HD6		
11	HD7		
12	HD8		
13	HD9		
14	GND	I	Ground
15	HD10	I/O	Data input and output port
16	HD11		
17	HD12		
18	HD13		
19	HD14		
20	VDD	I	Power supply
21	5VDD	I	5V power supply
22	HD15	I/O	Data input and output port
23	CS	I	Chip select signal input
24	RE	I	Read Enable signal input
25	WE	I	Write Enable signal input
26	BHE	I	Byte High Enable signal input
27	RDY	O	Acknowledge signal which is indicated the finish of data reading or writing via the host bus
28	INTR	O	Interrupt request signal against to the external CPU from M65773FP
29	GND	I	Ground
30	HA0	I	Address input port
31	HA1		
32	HA2		
33	HA3		
34	HA4		
35	VDD	I	Power supply
36	5VDD	I	5V power supply
37	HA5	I	Address input port
38	HA6		
39	HA7		
40	HA8		

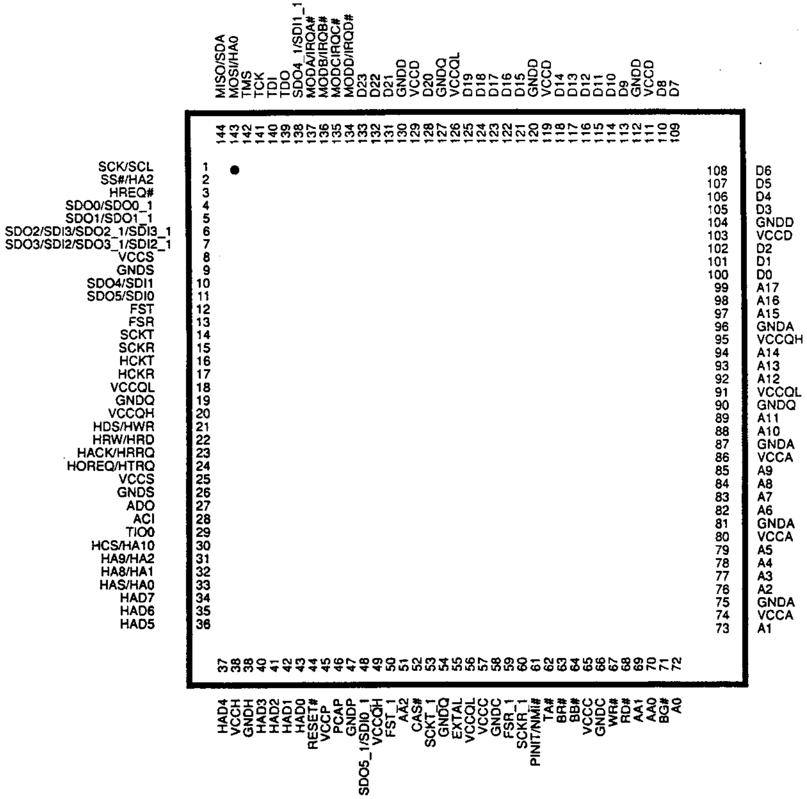
No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
41	HA9	I	Address input port	83	VDD	I	Power supply
42	GND	I	Ground	84	VSYNC	O	Vertiacl sync. signal output
43	CDMCK	I	Connect to ground	85	HSYNC	O	Horizontal sync. signal output
44	CDLRCK	I	L/R clock clock input from CDDSP	86	PICSTRT		
45	CDBCK	I	PCM bit clock input from CDDSP	87	MBSTRT		
46	CDDATA	I	Digital audio interface input	88	MBDATA		
47	VDD	I	Power supply	89	GND	I	Ground
48	CDDIN	I	PCM audio data input from CDDSP	90	PWD	O	Phase comparator output for external sync. operation
49	INT2	O	Interrupt request signal against to the external CPU from M65773FP	91	CSYNC	I	Composite SYNC signal input
50	INT3			92	OSDKEY	O	OSD key flag output
51	DREQ	O	DMA request signal for OSD bitmap transfer	93	PXCLK	O	Pixel clock (27MHz free-running clock)
52	DACK	I	DMA acknowledge signal for OSD bitmap transfer	94	VDD	I	Power supply
53	GND	I	Ground	95	PD7	O	Digital pixel data
54	CLKO	O	27MHz clock output	96	PD6		
55	CLKIN	I	System clock input	97	PD5		
56	AVDD1	I	Analog power supply	98	PD4		
57	AGND1	I	Analog ground	99	GND	I	Ground
58	AGND3			100	PD3	O	Digital pixel data
59	AVDD3	I	Analog power supply	101	PD2		
60	CCAP	I	Connect to ground	102	PD1		
61	AGND2	I	Analog ground	103	PD0		
62	AVDD2	I	Analog power supply	104	VDD	I	Power supply
63	ACLKO	–	Open	105	GND	I	Ground
64	ACLKI	I	Audio clock input	106	RESET	I	Hardware reset input
65	HMODE1	I	Setting pin of host interface operating mode	107	TEST0	I	Connect to ground normally
66	GND	I	Ground	108	TEST1		
67	VDD	I	Power supply	109	TEST2		
68	AOD	O	PCM output of audio data	110	VDD	I	Power supply
69	AO2			111	NMD0	I/O	Data transfer line with DRAM
70	AO1			112	NMD15		
71	AO0			113	NMD1		
72	GND	I	Ground	114	NMD14		
73	DOUT1	O	Digital audio interface output	115	GND	I	Ground
74	DOUT0			116	NMD2	I/O	Data transfer line with DRAM
75	SDA	–	Open	117	NMD13		
76	SCL	–	Open	118	NMD3		
77	VDD	I	Power supply	119	NMD12		
78	GND	I	Ground	120	VDD	I	Power supply
79	DACCLK	O	Over-sampling operating clock output	121	NMD4	I/O	Data transfer line with DRAM
80	DOCLK	O	PCM bit clock output	122	NMD11		
81	LRCLK	O	Clock output for discriminating the channel (L/R) of PCM audio data	123	NMD5		
82	HMODE0	I	Setting pin of host interface operating mode	124	NMD10		

No.	Pin Name	I/O	Pin Function	No.	Pin Name	I/O	Pin Function
125	GND	I	Ground	167	MA5	O	Address line with SDRAM
126	NMD6	I/O	Data transfer line with DRAM	168	GND	I	Ground
127	NMD9			169	MA1	O	Address line with SDRAM
128	NMD7			170	MA6		
129	NMD8			171	MA0		
130	VDD	I	Power supply	172	MA7		
131	NCAS0	O	CAS (Column Address Strobe) control line of DRAM	173	VDD	I	Power supply
132	NWE	O	WE control line of DRAM	174	MA10	O	Address line with SDRAM
133	NCAS1	O	CAS (Column Address Strobe) control line of DRAM	175	MA8		
134	NRAS	O	RAS (Row Address Strobe) control line of DRAM	176	MA11		
135	GND	I	Ground	177	MA9		
136	NMA9	O	Address line with DRAM	178	GND	I	Ground
137	NMA8			179	DCS	O	Chip select of SDRAM
138	VDD	I	Power supply	180	RAS	O	RAS (Row Address Strobe) control line of SDRAM
139	NMA0	O	Address line with DRAM	181	CAS	O	CAS (Column Address Strobe) control line of SDRAM
140	NMA7			182	VDD	I	Power supply
141	NMA1			183	MCLK	O	Operation clock of SDRAM
142	NMA6			184	GND	I	Ground
143	GND	I	Ground	185	DWE	O	WE control line of SDRAM
144	NMA2	O	Address line with DRAM	186	DQMU	O	DQM control line of SDRAM Use for mask of upper byte output.
145	NMA5			187	DQML	O	DQM control line of SDRAM Use for mask of lower byte output.
146	NMA3			188	VDD	I	Power supply
147	NMA4			189	MD7	I/O	Data transfer line with SDRAM
148	VDD	I	Power supply	190	MD8		
149	BD7	I	Bit stream input port	191	MD6		
150	BD6			192	MD9		
151	GND	I	Ground	193	GND	I	Ground
152	BD5	I	Bit stream input port	194	MD5	I/O	Data transfer line with SDRAM
153	BD4			195	MD10		
154	BD3			196	MD4		
155	BD2			197	MD11		
156	VDD	I	Power supply	198	VDD	I	Power supply
157	GND	I	Ground	199	MD3	I/O	Data transfer line with SDRAM
158	BD1	I	Bit stream input port	200	MD12		
159	BD0			201	MD2		
160	BCLK	I	Strobe signal (clock) of BD port	202	MD13		
161	BDEN	I	Indicates the effective or invalid data which is sampled from BD port	203	GND	I	Ground
162	BDREQ	O	Output permission signal against to the device (channel decoder) which connecting to BD port	204	MD1	I/O	Data transfer line with SDRAM
163	VDD	I	Power supply	205	MD14		
164	MA3	O	Address line with SDRAM	206	MD0		
165	MA4			207	MD15		
166	MA2			208	VDD	I	Power supply

■ XCA56367PV150 (DVDM ASSY : IC901)

- DVD-Audio decoder

- Pin Arrangement


1 SCK/SCL
2 SS#/HA2
3 HREQ#
4 SDO0/SDO0_1
5 SDO1/SDO1_1
6 SDO2/SDI3/SDO2_1/SDI3_1
7 SDO3/SDI2/SDO3_1/SDI2_1
8 VCCS
9 GNDS
10 SDO4/SDI1
11 SDO5/SDI0
12 FST
13 FSR
14 SCKT
15 SCKR
16 HCKT
17 HCKR
18 VCCQL
19 GNDQ
20 VCCQH
21 HDS/HWR
22 HRW/HRD
23 HACK/HRRQ
24 HOREQ/HTRQ
25 VCCS
26 GNDS
27 ADO
28 ACI
29 TIO0
30 HCS/HA10
31 HA9/HA2
32 HA8/HA1
33 HAS/HA0
34 HAD7
35 HAD6
36 HAD5
37 HAD4
38 VCCH
38 GNDH
40 HAD3
41 HAD2
42 HAD1
43 HAD0
44 RESET#
45 VCCP
46 PCAP
47 GNDP
48 SDO5_1/SDI0_1
49 VCCQH
50 FST_1
51 AA2
52 CAS#
53 SCKT_1
54 GNDQ
55 EXTAL
56 VCCQL
57 VCCC
58 GNDC
59 FSR_1
60 SCKR_1
61 PINIT/NMI#
62 TA#
63 BR#
64 BB#
65 VCCC
66 GNDC
67 WR#
68 RD#
69 AA1
70 AA0
71 BG#
72 A0
73 A1
74 VCCA
75 GNDA
76 A2
77 A3
78 A4
79 A5
80 VCCA
81 GNDA
82 A6
83 A7
84 A8
85 A9
86 VCCA
87 GNDA
88 A10
89 A11
90 GNDQ
91 VCCQL
92 A12
93 A13
94 A14
95 VCCQH
96 GNDA
97 A15
98 A16
99 A17
100 D0
101 D1
102 D2
103 VCCD
104 GNDD
105 D3
106 D4
107 D5
108 D6
109 D7
110 D8
111 VCCD
112 GNDD
113 D9
114 D10
115 D11
116 D12
117 D13
118 D14
119 VCCD
120 GNDD
121 D15
122 D16
123 D17
124 D18
125 D19
126 VCCQL
127 GNDQ
128 D20
129 VCCD
130 GNDD
131 D21
132 D22
133 D23
134 MODD/IRQD#
135 MODC/IRQC#
136 MODB/IRQB#
137 MODA/IRQA#
138 SDO4_1/SDI1_1
139 TDO
140 TDI
141 TCK
142 TMS
143 MOSI/HA0
144 MISO/SDA

- Pin Function

No.	Pin Name	I/O	Function
1	SCK	I	A clock for host serial communication
2	SS	I	for serial communication
3	HREQ#	O	SHI transfer permission information
4	SDO0	O	ESAI Lf/Rf, L/R 2ch data output
5	SDO1	O	ESAI Ls/Rs, (surround system data) output
6	SDO2	O	ESAI center /Lfe output
7	SDO3	O	N.C.
8	VCCS	–	ESSI, SCI, Timer Power
9	GNDS	–	ESSI, SCI, Timer GND
10	SDI1	I	N.C.
11	SDO5	O	down mixture output
12	FST	I/O	LRCK input/output
13	FSR	O	N.C.
14	SCKT	I/O	BCK input/output
15	SCKR	–	N.C.
16	HCKT	I	HCK input
17	HCKR	O	N.C.
18	VCCQL	–	Quiet Core Power 1.8V
19	GNDQ	–	Quiet GND
20	VCCQH	–	Quiet External Power
21	HDS	I	Data strike rope from MyChip
22	HRW	I	Port which selects a data transfer course between Digital Signal Processor as MyChip
23	HACK	O	GPIO output (for error notice to a microcomputer)
24	HOREQ	O	GPIO output (a request to SCRUT)
25	VCCS	–	ESSI, SCI, Timer Power
26	GNDS	–	ESSI, SCI, Timer GND
27	ADO	O	DAX data output
28	ACI	I	A clock for DAX
29	TIO0	O	SHI transfer permission information
30	HCS	O	GPIO output (decode buffer full information) GPIO output (Digital Signal Processor active state information)
31	HA2	I	Host Address Input 2
32	HA1	I	Host Address Input 1
33	HA0	I	Host Address Input 0
34	HAD7	I	Address/Data Bus
35	HAD6		
36	HAD5		

No.	Pin Name	I/O	Function
37	HAD4	I	Address/Data Bus
38	VCCH	–	Host Power
39	GNDH	–	Host GND
40	HAD3	I	Address/Data Bus
41	HAD2		
42	HAD1		
43	HAD0		
44	RESET	I	RESET
45	VCCP	–	PLL POWER
46	PCAP	I	Capacitor connection for PLL loop filter
47	GNDP	–	PLL GND
48	SDI0_1	I	Ls/Rs input
49	VCCQH	–	Quiet External Power
50	FST_1	I	LRCK
51	AA2	O	Chip select for memory
52	CAS	O	N.C.
53	SCKT_1	I	BCK
54	GNDQ	–	Quiet GND
55	EXTAL	I	27MHz clock
56	VCCQL	–	Quiet Core Power
57	VCCC	–	Bus Control Power
58	GNDC	–	Bus Control GND
59	FSR_1	–	N.C.
60	SCKR_1	–	N.C.
61	PINT	I	PLL Intial
62	TA	I	N.C.
63	BR	O	
64	BB	I	
65	VCCC	–	Bus Control Power
66	GNDC	–	Bus Control GND
67	WR	O	Wright signal for memory
68	RD	O	Read signal for memory
69	AA1	O	N.C.
70	AA0	O	
71	BG	I	
72	A0	O	Address Bus

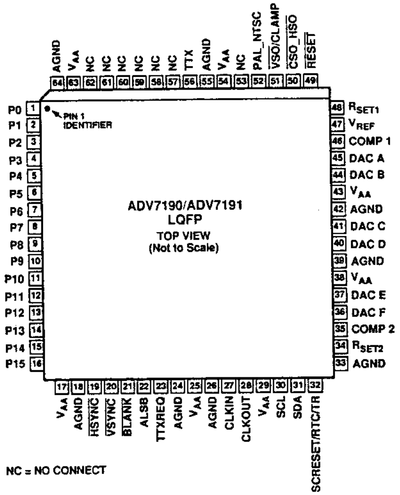
No.	Pin Name	I/O	Function
73	A1	O	Address Bus
74	VCCA	–	Address Bus Power
75	GNDA	–	Address Bus GND
76	A2	O	Address Bus
77	A3		
78	A4		
79	A5		
80	VCCA	–	Address Bus Power
81	GNDA	–	Address Bus GND
82	A6	O	Address Bus
83	A7		
84	A8		
85	A9		
86	VCCA	–	Address Bus Power
87	GNDA	–	Address Bus GND
88	A10	O	Address Bus
89	A11		
90	GNDQ	–	Quiet GND
91	VCCQL	–	Quiet Core Power 1.8V
92	A12	O	Address Bus
93	A13		
94	A14		
95	VCCQH	–	Quiet External Power
96	GNDA	–	Address Bus GND
97	A15	O	Address Bus
98	A16		
99	A17		
100	D0	I/O	Data Bus
101	D1		
102	D2		
103	VCCD	–	Data Bus Power
104	GNDD	–	Data Bus GND
105	D3	I/O	Data Bus
106	D4		
107	D5		
108	D6		

No.	Pin Name	I/O	Function
109	D7	I/O	Data Bus
110	D8		
111	VCCD	–	Data Bus Power
112	GNDD	–	Data Bus GND
113	D9	I/O	Data Bus
114	D10		
115	D11		
116	D12		
117	D13		
118	D14		
119	VCCD	–	Data Bus Power
120	GNDD	–	Data Bus GND
121	D15	I/O	Data Bus
122	D16		
123	D17		
124	D18		
125	D19		
126	VCCQL	–	Quiet Core Power 1.8V
127	GNDQ	–	Quiet GND
128	D20	I/O	Data Bus
129	VCCD	–	Data Bus Power
130	GNDD	–	Data Bus GND
131	D21	I/O	Data Bus
132	D22		
133	D23		
134	MODD	I	Mode of operation choice
135	MODC		
136	MODB		
137	MODA		
138	SDI1_1	I	C/Lfe input
139	TDO	O	JTAG Test Data Output
140	TDI	I	JTAG Test Data Input
141	TCK	I	JTAG Test Clock
142	TMS	I	JTAG Test Mode Select
143	MOSI	I	SH serial data input
144	MOSO	O	SH serial data output

■ ADV7190KST (AVJB ASSY : IC601)

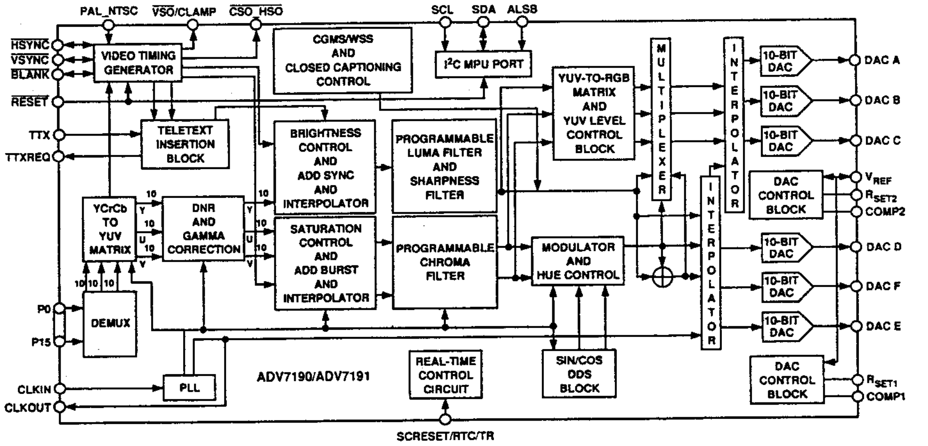
- Video Encoder IC

- Pin Arrangement


AGND 64
VAA 63
NC 62
NC 61
NC 60
NC 59
NC 58
NC 57
TTX 56
AGND 55
VAA 54
NC 53
PAL_NTSC 52
VSO/CLAMP 51
CSO_HSO 50
RESET 49
PIN 1 IDENTIFIER
P0 1
P1 2
P2 3
P3 4
P4 5
P5 6
P6 7
P7 8
P8 9
P9 10
P10 11
P11 12
P12 13
P13 14
P14 15
P15 16
ADV7190/ADV7191
LQFP
TOP VIEW
(Not to Scale)
48 RSET1
47 VREF
46 COMP 1
45 DAC A
44 DAC B
43 VAA
42 AGND
41 DAC C
40 DAC D
39 AGND
38 VAA
37 DAC E
36 DAC F
35 COMP 2
34 RSET2
33 AGND
17 VAA
18 AGND
19 HSYNC
20 VSYNC
21 BLANK
22 ALSB
23 TTXREQ
24 AGND
25 VAA
26 AGND
27 CLKIN
28 CLKOUT
29 VAA
30 SCL
31 SDA
32 SCRESET/RTC/TR

NC = NO CONNECT

- Block Diagram


PAL_NTSC
VSO/CLAMP
CSO_HSO
SCL
SDA
ALSB
HSYNC
VSYNC
BLANK
RESET
TTX
TTXREQ
P0
P15
CLKIN
CLKOUT
VIDEO TIMING GENERATOR
CGMS/WSS AND CLOSED CAPTIONING CONTROL
I²C MPU PORT
TELETEXT INSERTION BLOCK
YCrCb TO YUV MATRIX
DNR AND GAMMA CORRECTION
BRIGHTNESS CONTROL AND ADD SYNC AND INTERPOLATOR
SATURATION CONTROL AND ADD BURST AND INTERPOLATOR
PROGRAMMABLE LUMA FILTER AND SHARPNESS FILTER
PROGRAMMABLE CHROMA FILTER
YUV-TO-RGB MATRIX AND YUV LEVEL CONTROL BLOCK
MODULATOR AND HUE CONTROL
MULTIPLEXER
INTERPOLATOR
INTERPOLATOR
DEMUX
PLL
ADV7190/ADV7191
REAL-TIME CONTROL CIRCUIT
SIN/COS DDS BLOCK
10-BIT DAC
DAC A
DAC B
DAC C
DAC CONTROL BLOCK
VREF
RSET2
COMP2
DAC D
DAC F
DAC E
RSET1
COMP1
SCRESET/RTC/TR
Y
U
V
10

• Pin Function

Pin No.	Mnemonic	Input / Output	Function
1–16	P0–P15	I	8-Bit or 16-Bit 4:2:2 Multiplexed YCrCb Pixel Port. The LSB of the input data is set up on Pin P0.
17, 25, 29, 38, 43, 54, 63	V_{AA}	P	Analog Power Supply (3.3 V to 5 V).
18, 24, 26, 33, 39, 42, 55, 64	AGND	G	Analog Ground.
19	$\overline{\text{HSYNC}}$	I/O	$\overline{\text{HSYNC}}$ (Modes 1, 2, and 3) Control Signal. This pin may be configured to be an output (Master Mode) or an input (Slave Mode) and accept Sync Signals.
20	$\overline{\text{VSYNC}}$	I/O	$\overline{\text{VSYNC}}$ Control Signal. This pin may be configured as an output (Master Mode) or as an input (Slave Mode) and accept $\overline{\text{VSYNC}}$ as a Control Signal.
21	$\overline{\text{BLANK}}$	I/O	Video Blanking Control Signal. This signal is optional. For further information see Vertical Blanking Data Insertion and $\overline{\text{BLANK}}$ Input section.
22	ALSB	I	TTL Address Input. This signal sets up the LSB of the MPU address.
23	TTXREQ	O	Teletext Data Request Output Signal, used to control teletext data transfer.
27	CLKIN	I	TTL Clock Input. Requires a stable 27 MHz reference clock for standard operation. Alternatively, a 24.5454 MHz (NTSC) or 29.5 MHz (PAL) can be used for square pixel operation.
28	CLKOUT	O	Clock Output Pin.
30	SCL	I	MPU Port Serial Interface Clock Input.
31	SDA	I/O	MPU Port Serial Data Input/Output.
32	SCRESET/ RTC/TR	I	Multifunctional Input: Real-Time Control (RTC) Input, Timing Reset Input, Subcarrier Reset Input.
34	R_{SET2}	I	A 1200 Ω resistor connected from this pin to ground is used to control full-scale amplitudes of the Video Signals from DACs D, E, and F.
35	COMP 2	O	Compensation Pin for DACs D, E, and F. Connect a 0.1 μF Capacitor from COMP2 to V_{AA}.
36	DAC F	O	S-Video C/V/RED Analog Output. This DAC is capable of providing 4.33 mA output.
37	DAC E	O	S-Video Y/U/BLUE Analog Output. This DAC is capable of providing 4.33 mA output.
40	DAC D	O	Composite/Y/GREEN Analog Output. This DAC is capable of providing 4.33 mA output.
41	DAC C	O	S-Video C/V/RED Analog Output. This DAC is capable of providing 4.33 mA output.
44	DAC B	O	S-Video Y/U/BLUE Analog Output. This DAC is capable of providing 4.33 mA output.
45	DAC A	O	Composite/Y/GREEN Analog Output. This DAC is capable of providing 4.33 mA output.
46	COMP 1	O	Compensation Pin for DACs A, B, and C. Connect a 0.1 μF Capacitor from COMP1 to V_{AA}.
47	V_{REF}	I/O	Voltage Reference Input for DACs or Voltage Reference Output (1.235 V). An external V_{REF} cannot be used in 4 oversampling mode.
48	R_{SET1}	I	A 1200 Ω resistor connected from this pin to ground is used to control full-scale amplitudes of the Video Signals from DACs A, B, and C.
49	$\overline{\text{RESET}}$	I	The input resets the on-chip timing generator and sets the ADV7190/ADV7191 into default mode. See Appendix 8 for Default Register settings.
50	$\overline{\text{CSO}}$_$\overline{\text{HSO}}$	O	Dual function $\overline{\text{CSO}}$ or $\overline{\text{HSO}}$ Output Sync Signal at TTL Level.
51	$\overline{\text{VSO}}$/CLAMP	I/O	Multifunction Pin. $\overline{\text{VSO}}$ Output Sync Signal at TTL level. CLAMP TTL Output Signals can be used to drive external circuitry to enable clamping of all Video Signals.
52	PAL_NTSC	I	Input signal to select PAL or NTSC mode of operation, pin set to Logic 1 selects PAL.
53, 57–62	NC		No Connect.
56	TTX	I	Teletext Data Input Pin.

■ PE5251A (FLIR ASSY : IC101)

• Mode Control IC

• Pin Function

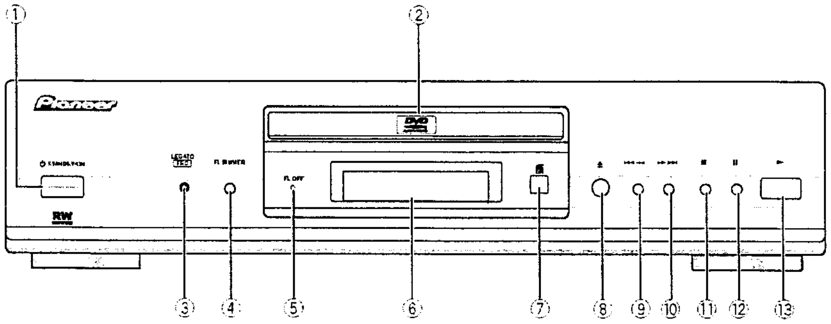
No.	Pin Name	I/O	Pin Function
1	VDD1	–	Positive power supply (excepting port, analog and FIP controller/driver section)
2	VSS1	–	Ground (excepting port and analog)
3	X1	I	Connect a crystal for main system clock oscillation
4	X2	–	
5	IC	–	Internal connection Connect to Vss1 directly.
6	$\overline{\text{RESET}}$	I	System reset input
7	P27/$\overline{\text{SCK1}}$	I/O	Port 2 8 bit input/output port / serial clock input/output
8	P26/SI1	I/O I	Port 2 8 bit input/output port / Serial data input
9	P25/SO1	I/O O	Port 2 8 bit input/output port / Serial data output
10	P24/BUSY	I/O I	Port 2 8 bit input/output port / Busy signal input
11	P23	I/O	Port 2 8 bit input/output port
12	P22		
13	P21/SO3	I/O O	Port 2 8 bit input/output port / Serial data output
14	P20/$\overline{\text{SCK3}}$	I/O	Port 2 8 bit input/output port / serial clock input/output
15	P00/INTP0	I/O I	Port 0 3 bit input/output port / External interrupt request input
16	P01/INTP1		
17	P02/TI	I/O I	Port 0 3 bit input/output port / Timer input of 8 bit remote control timer (TM9)
18	AVSS	–	Ground of A/D converter
19	ANI3	I	Analog input of A/D converter
20	ANI2		
21	ANI1		
22	ANI0		
23	VSS0	–	Ground of port section
24	AVDD	–	Analog power supply of A/D converter / reference voltage input
25	VDD0	–	Positive power supply of port section
26	P64	I/O	Port 6 5-bit high proof pressure input/output ports of P-ch open drain
27	P63		
28	P62		
29	P61		
30	P60		
31	P57	I/O	Port 5 8-bit high proof pressure input/output ports of P-ch open drain
32	P56		
33	P55		
34	P54		
35	P53		
36	P52		
37	P51		
38	P50		
39	P47	O	Port 4 8-bit high proof pressure input/output ports of P-ch open drain
40	P46		

No.	Pin Name	I/O	Pin Function
41	P45	O	Port 4 8-bit high proof pressure input/output ports of P-ch open drain
42	P44		
43	P43/FIP35	O	Port 4 8-bit high proof pressure input/output ports of P-ch open drain / High proof presure large current output of FIP controller/driver
44	P42/FIP34		
45	P41/FIP33		
46	P40/FIP32		
47	P37/FIP31	O	Port 3 8-bit high proof pressure input/output ports of P-ch open drain / High proof presure large current output of FIP controller/driver
48	P36/FIP30		
49	P35/FIP29		
50	P34/FIP28		
51	P33/FIP27		
52	P32/FIP26		
53	P31/FIP25		
54	P30/FIP24		
55	FIP23	O	High proof presure large current output of FIP controller/driver
56	FIP22		
57	FIP21		
58	FIP20		
59	VDD2	–	Positive power supply of FIP controller/driver section
60	VLOAD	–	Connect a pull-down resistor of FIP controller/driver
61	FIP19	O	High proof presure large current output of FIP controller/driver
62	FIP18		
63	FIP17		
64	FIP16		
65	FIP15		
66	FIP14		
67	FIP13		
68	FIP12		
69	FIP11		
70	FIP10		
71	FIP9		
72	FIP8		
73	FIP7		
74	FIP6		
75	FIP5		
76	FIP4		
77	FIP3		
78	FIP2		
79	FIP1		
80	FIP0		

8. PANEL FACILITIES AND SPECIFICATIONS

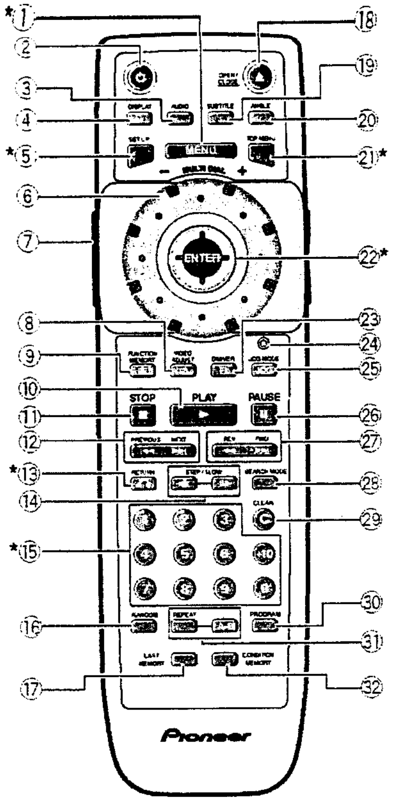
8.1 PANEL FACILITIES

8.1.1 Front Panel



1 **⏻STANDBY/ON**
2 **Disc tray**
3 **LEGATO PRO indicator**
4 **FL DIMMER** – Press to change the display brightness
5 **FL OFF indicator** – Lights when the display is switched off using the **FL DIMMER** button
6 **Display**
7 **Remote control sensor**
8 **⏏** – Disc tray open/close
9 **⏮ ◀◀** – Reverse scan/skip
10 **▶▶ ⏭** – Forward scan/skip
11 **■** – Stop
12 **❚❚** – Pause
13 **▶** – Play

8.1.2 Remote Control


*1
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*13
14
*15
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*21
*22
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24
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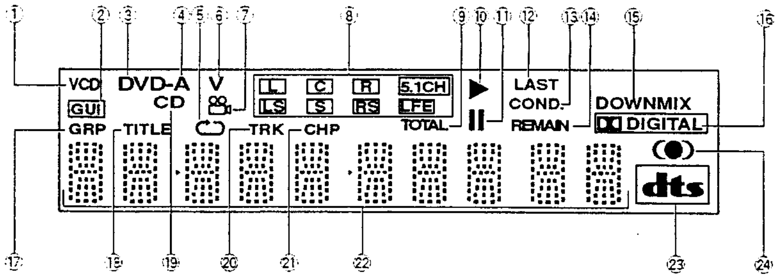
27
28
29
30
31
32
MENU
ENTER
STOP
PLAY
PAUSE
Pioneer

1 MENU
2 ⏻ – switches player on or into standby.
3 AUDIO
4 DISPLAY
5 SETUP
6 MULTI DIAL
7 LIGHTING – press to illuminate buttons **8, 9, 10, 11, 23, 25, 26**
8 V.ADJ – Video adjust
9 F.MEM – Function memory

10 ▶ – Play
11 ■ – Stop
12 |◀◀ ▶▶| – Skip
13 ↶ – Return
14 ◀II II▶ – Frame advance/slow motion
15 Number buttons
16 RANDOM
17 LAST MEMORY
18 ▲ – Disc tray open/close
19 SUBTITLE
20 ANGLE
21 TOP MENU
22 Joystick / ENTER button

23 FL – Press to change the display brightness
24 Jog indicator – lights when multi dial is in jog mode
25 JOG
26 II – Pause
27 ◀◀ ▶▶ – Scan
28 SEARCH MODE
29 C – Clear
30 PROGRAM
31 REPEAT — A-B
32 CONDITION MEMORY

8.1.3 Display Window


1
2
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9
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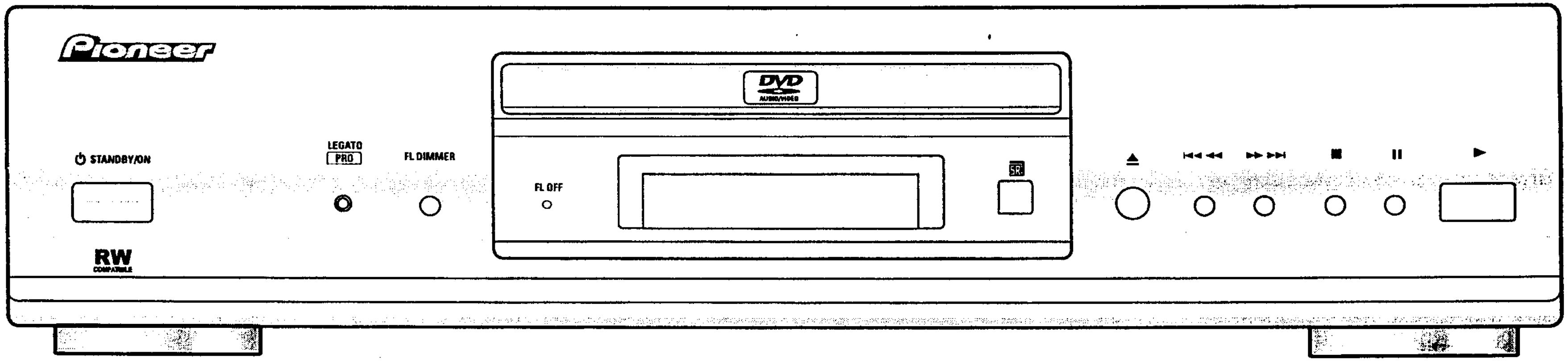
11
12
13
14
15
16
VCD
DVD-A
CD
V
GUI
L
C
R
5.1CH
LS
S
RS
LFE
TOTAL
LAST
COND.
REMAIN
DOWNMIX
DD DIGITAL
GRP
TITLE
TRK
CHP
dts
17
18
19
20
21
22
23
24

1 **VCD** – Lights when a Video CD is loaded
2 **GUI** – Lights when an on-screen menu is being displayed
3 **DVD** – Lights when a DVD is loaded
4 **DVD-A** – Lights when a DVD-Audio disc is playing
5 Lights during repeat play
6 **V** – Lights during playback of the video part of DVD discs
7 Lights during a multi-angle section of a DVD-Video disc
8 **L, C, R, LS, S, RS, LFE** – show which channels are recorded on the disc playing
5.1CH – Lights when the audio ouput is set to 5.1 channel
9 **TOTAL** – Indicates that the time shown in the character display is the total playing time of the disc
10 **▶** – Lights when a disc is playing
11 **II** – Lights wheh a disc is paused
12 **LAST** – Lights when the disc has a bookmark memory

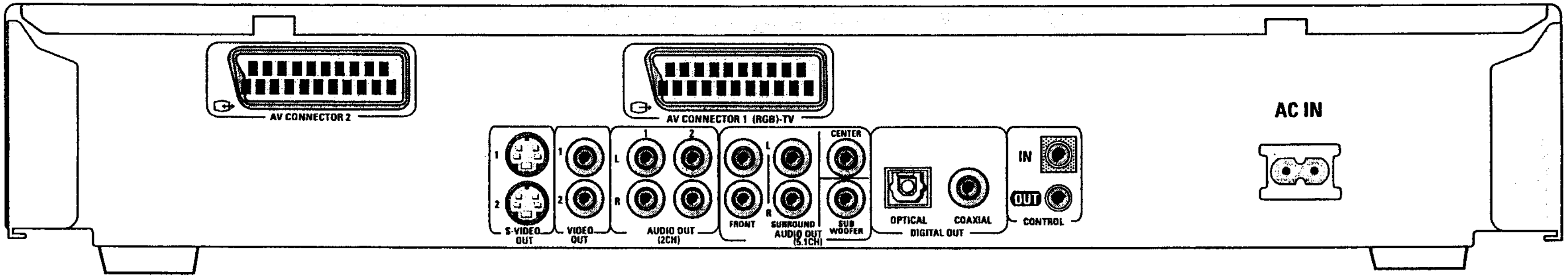
13 **COND.** – Lights when the disc has had preferences set

14 **REMAIN** – Indicates that the time shown in the character display is the remaining playing time of the disc
15 **DOWNMIX** – Lights when multi-channel DVD-Audio, Dolby Digital, DTS or MPEG audio is downmixed, for example to two channel stereo
16 **DD DIGITAL** – Lights when a disc with Dolby Digital audio is playing
17 **GRP** – Indicates that the number below in the character display is a DVD-Audio group number
18 **TITLE** – Indicates that the number below in the character display is a DVD-Video title number
19 **CD** – Lights when a CD is loaded
20 **TRK** – Indicates that the number below in the character display is a DVD-Audio, CD, Video CD or MP3 track number
21 **CHP** – Indicates that the number below in the character display is a DVD-Video chapter number
22 **Character display**
23 Lights when a disc with DTS audio is playing
24 Lights when playing a disc with TruSurround switched on

■ Front View


STANDBY/ON
LEGATO PRO
FL DIMMER
FL OFF
RW COMPATIBLE
DVD AUDIO/VIDEO

■ Rear View


AV CONNECTOR 2
AV CONNECTOR 1 (RGB)-TV
1
2
S-VIDEO OUT
VIDEO OUT
L
R
AUDIO OUT (2CH)
FRONT
SURROUND
CENTER
SUB WOOFER
AUDIO OUT (5.1CH)
OPTICAL
COAXIAL
DIGITAL OUT
IN
OUT
CONTROL
AC IN

8.2 SPECIFICATIONS

General

System	DVD-Video. DVD-Audio. DVD-R/RW. Video-CD. CD and MP3 files
Power requirements	220-240 V, 50/60 Hz
Power consumption	15 W
Power consumption in standby mode	less than 1 W
Weight	2.9 kg
Dimensions	420 (W) x 277 (D) x 95.5 (H) mm
Operating temperature	+5°C to +35°C
Operating humidity	5% to 85% (no condensation)

S-Video output (2 individual outputs)

Y (luminance) - Output level	1 Vp-p (75 Ω)
C (color) - Output level	286 mVp-p (75 Ω)
Jacks	S-VIDEO jack

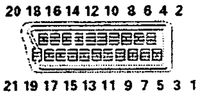
Video output (2 individual outputs)

Output level	1 Vp-p (75 Ω)
Jacks	RCA jack

21-pin connector assignment

AV connector input/output	21-pin connector

This connector provides the video and audio signals for connection to a compatible color TV or monitor.



PIN no.			
1	Audio 2/R out	11	G* out
3	Audio 1/L out	15	R* or C* out
4	GND	17	GND
7	B* out	19	Video out or Y* out
8	Status	21	GND

* AV CONNECTOR 1(RGB)-TV is output
AV CONNECTOR 2 is not output

Audio output (2 pairs)

Output level	
During audio output	200 mVrms (1 kHz, –20 dB)
Number of channels	2
Jacks	RCA jack

Audio output (multi-channel / L, R, C, SW, LS, RS)

Output level	
During audio output	200 mVrms (1 kHz, –20 dB)
Number of channels	6
Jacks	RCA jack

Digital audio characteristics

Frequency response	4 Hz to 44 kHz (DVD fs: 96 kHz)
	4 Hz to 88 kHz (DVD-Audio fs: 192 kHz)
S/N ratio	118 dB
Dynamic range	108 dB
Total harmonic distortion	0.0015 %
Wow and flutter	Limit of measurement (±0.001% W. PEAK) or lower

Digital output

Optical digital output	Optical digital jack
Coaxial digital output	RCA jack

Other terminals

Control in	Minijack (3.5 ø)
Control out	Minijack (3.5 ø)

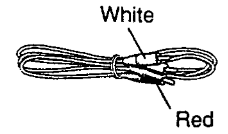
Accessories

Audio cable	1
Video cable	1
Remote control unit	1
"AA" size (R6P) batteries	2
Operating Instructions	1
Warranty card	1

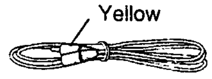
Note: The specifications and design of this product are subject to change without notice, due to improvement.

■ Accessories

Audio Cable (L=1.5m): VDE1052

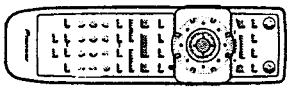


Video Cable (L=1.5m): VDE1053

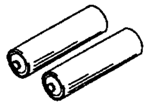


Power Cable : ADG1154

Remote Control Unit : VXX2627



Dry Cell Battery (R6P,AA)



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